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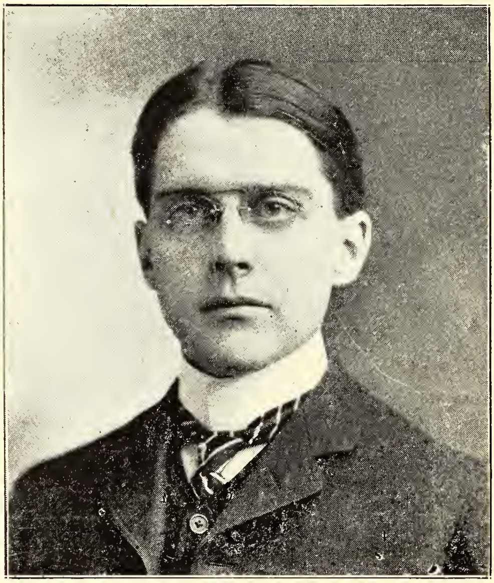

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The Corpuscle.

Rush Medical College, Chicago, Ill.
In Affiliation with the University of Chicago.

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JOINT BANQUET OF FACULTY AND ALUMNI OF RUSH MEDICAL COLLEGE.

Held at Auditorium Hotel, Chicago, May 25, 1899.
Stenographic Report.

PROF. JAMES NEVINS HYDE. (Toast-Master).—

"I heard the other day a story to the effect that on an occasion where there was neither a clergyman nor any one capable of discharging the function of a clergyman, they selected a man to officiate, on account of his having lived next door to a clergyman. I think it must have been on some such principle that I was asked to preside here to-night. During part of my life I have lived next door to the most beloved of our profession, dear old Sol Smith, and I trust you will pardon me any mistakes which I may make in this novel role which I am filling to-night. It gives me very great pleasure on the part of Rush Medical College to bid you all to-night a most hearty welcome. Our mother is not only hospitable, but as we all know, as the years pass by, she is now becoming almost venerable.

"During the years which have passed we have had many changes. We have lost some members of the Faculty to whom reference will be made later; other men have to a certain degree taken their places, good men and true, men whom we welcome as we welcomed you when you first came to the arms of our mother. We have made changes in the curriculum, you all know we have adopted the quarterly system and have given an opportunity to take up an elective system,—but why should we talk of students to this body of graduates? Let me tell you,

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if you do not know the reason—I presume you do—the reason we have kept ourselves so young is that we have been keeping ourselves in contact with the younger profession. As class has succeeded class in Rush Medical College, we have kept ourselves young by keeping in touch with them. It is for that reason that Rush Medical College to-night greets you with a heart as warm, with an ambition as high and with a strength and purpose as great as when she first welcomed you to her labors."

Here followed a class-song.

THE TOAST-MASTER.—"You have all heard the story of the man who started out by quoting Scott and found himself winding up with Watts He began by saying,

> 'Oh, woman, in our hours of ease,
> Uncertain, coy and hard to please—
> But seen too oft, familiar with thy face
> We first pity, then endure, then embrace.'

"As to the gentleman on whom I shall presently call for a few words, I would like to change that expression a little, and say' that when he first came here, we began by respecting him, then, after we came to know him more, we admired him, and at last we came to love him very much indeed.

"He came to us presumably with no more knowledge of medical skill than most men have who are not of that profession, and to day he is master of every detail connected with the College, more so, I think, than any one man connected with it, and this is not as the result of mere reading, but as the result of labor devoted to it and devcted most conscientiously. Everybody knows that he loves Rush Medical College more than any other institution. university or other. How do you suppose I know it? I will tell you a secret and hope that you will not tell it to anybody else. You may prove it yourselves,—when he begins to talk to you, if he raises his right arm and folds his hands and makes that sort of a gesture (indicating), you may be sure that what he tells is true. (Laughter.) The man needs no introduction, President Harper of the University of Chicago."

REMARKS BY PRESIDENT HARPER.

PROF. WILLIAM R. HARPER.—Gentlemen, I am going to try to keep my hand down. (Laughter). I am not quite sure whether I am thinking of Rush Medical College to-night from the standpoint of one who is on the outside, or from the standpoint and view of one who is on the inside. I have felt that I was on the outside and yet I may be free to state to you that after ten or twelve or fifteen—I have forgotten the exact number—of very carefully selected dinners which I have had the pleasure of eating this last year side by side with the members of the Rush Medical Faculty week after week I have come to think that there is at least some part of the inside of the College to which I may lay claim. And I think I may say too, that these have been some of the most pleasant dinners that it has been my privilege to enjoy. I wish you might have seen the spectacle of these twenty-five or thirty dinners, the professors of the College eating night after night, regardless of health, sitting down at the table at 6 o'clock in the evening, sharp, and getting up at eleven. Not eating all that time,—but devoting themselves without any rest to the consideration of the interests of the College, the great questions of educational policy. These have been most profitable evenings and they have meant progress, I am sure, for Rush Medical College.

"I wish for the moment that you might regard me as being on the outside, and I wish from the point of view of one on the outside to congratulate those who have had to do with the exercises of to-day. It seems to me that the exercises of this afternoon from the first note to the last were exercises of a very high order. I am sure that I speak the thought of all who were there this afternoon when I say a word of appreciation—I wish it might be more than a word—of the magnificent address to which we listened, the address of the President of the University of Norte Dame. I wish to congratulate the College on the magnificent—I cannot use another word, there is not another word to express it, so I will have to repeat that word—magnificent spectacle of the class, the class of 168 men who came forward and received from the hands of the Dean of the College their degrees. It was something to inspire those who saw it and help them realize what the magnitude of the work of this College is.

"Yet, while we here to-night congratulate ourselves, we must also remember that we have that in respect to which we must mourn. We cannot meet here to-night, we cannot sit here around these tables without thinking again and again of the men who were with us a year ago to-night, who are not here.

Those two strong men with whom it was my privilege just to begin to become acquainted, Dr. Etheridge and Dr. Hamilton. Men of eminence, men of great minds, but also men of great hearts and, gentlemen, in their memory I ask you at this time to rise and stand. (The audience rose and stood for a moment with bowed heads.)

"Has there been progress in the College this year? I have no address to present you this evening, but I wish to speak of three or four things very briefly. There were at the College a year ago 661 students; there have been in the College this year 940—a gain of over 40 per cent., a gain which in the history of educational work in old established institutions is something phenomenal, a gain which, however, is indicative of the very serious questions which must present themselves. It is an impossibility for the College to do good work with that number of men with its present facilities. It is simply impossible for so great a multitude of men to be handled by the College in the buildings which the College now possesses. But we cannot be other than gratified over this wonderful step forward. It must be expected that there will come a reaction, and we must prepare ourselves for the reaction. It will be a natural, a very natural thing, for the next year if the number should fall below this. Let us be prepared for this diminishing in numbers. At least it will be due in part to one point which I am sure every man here will regard as a mark of progress, and that is, higher requirements for entrance. Requirements for entrance will include what is almost six months in advance of every requirement that has hitherto been called for. Then, we remind you, the Alumni of the institution, in your advice given to young men who will come to College, that the advancement will be made greater for the year to follow, and another advance for the year to follow that, and another for the next year, until four years from now it will be the policy of the College to admit to its doors, only those men who have completed in a college at least two years of college work. I think we may be quite certain that this will gradually reduce the number of men. I even hope that it may, for, as I have mentioned this gradually increasing number of students is something that we cannot keep up with the facilities that we have in the College; it is something that must be changed if the best work is to be accomplished. With the new announcements you will see that a new principle has been adopted in the matter of elective work offered, and next year in all the departments a large number of elective courses will be given, so that men may choose this or that course. It is the introduction of a principle that will have a tremendous influence, not simply on the work of the students, but on the work of the Faculty. When men in the Faculty appreciate the fact that their work is taken because the students want it, and not because the students have to take it, there will be better instruction given in some departments.

"The announcements will also be made of the adoption of the quarterly system. I wish there were time here to speak in some detail of this. On the first of July next men may come and enter any of the departments, any of the classes, the courses will be open in every department. They may come in the first of October and enter any of the courses for which they are prepared in any of the classes, and the same again the first of January, the same the first of April. Men may study what they wish, four quarters in the twelve months, but they may, if they prefer, study six months; they may come when they please and go when they please, receiving credit for the work that they do, the unit being what they accomplish in the twelve weeks.

"I think I may say still further that many departments of the College this year have organized themselves more closely than ever before. Some of the heads of departments have called about them the other men of the departments, they have taken up the departments, gone into the pedagogic side, not the medical side, more carefully perhaps than ever before; and this means a great deal. More students have been dropped from the College this year than ever before because they did not do good work. And the trustees have found it wise and profitable to cut off some members of the Faculty, because they did not do good work.

"I am prolonging my remarks to a greater extent than I had at first anticipated, but I want to speak of two things, one, the new announcement, the new assignment in the Faculty, which, by the authority of the Board of Trustees, I for the first time now announce the following appointments made to administrative positions for the year beginning July 1, 1899.:

Dr. F. C. Coolidge, now Examiner, to be Dean of the Freshman class.

Dr. J. M. Dodson, now Junior Dean, to be Dean of the Sophomore and Junior classes.

Dr. Frank Billings to be Dean of the Senior class.

Dr. H. M. Lyman, now Senior Dean, to be Dean of the Faculty of the College.

Dr. L. Hektoen to be Librarian.

Dr. Fletcher Ingalls to be Comptroller.

Dr. A. D. Bevan is transferred from the Department of Anatomy to the Department of Surgery, with the rank of Associate Professor. He is, however, requested to continue temporarily in charge of the Department of Anatomy with the title of Professor of Surgical Anatomy.

The resignation of Professor E. Klebs has been accepted.

Dr. W. T. Belfield is transferred from Bacteriology to the Department of Surgery with the rank of Associate Professor.

Assistant Professor E. O. Jordan, of the University of Chicago, is appointed to give instruction in Bacteriology.

Dr. J. C. Webster; of McGill University Montreal, Can., is appointed Professor of Obstetrics and Gynecology.

Dr. Christian Fenger, of the Chicago Medical College, is appointed Professor of Clinical Surgery.

'The College must have, to do its work, and I venture to predict that it will have before we meet again a year from now, not perhaps entirely finished, but at all events under construction, a new building. It is impossible for the work to be done in the present building. I remember that at the dinner of Western medical men the suggestion was made that the debt of $71,000 was a debt that must be paid within sixty days. Rush medical men joined together, and I have never known a better example of loyalty to an institution than was exhibited at this time,—the members of the Faculty joined together and, with two magnificent gifts with which you are all familiar, and with other gifts in proportion, the debt was paid. The College was free from a burden it had carried. Just now it is of equal importance that there shall be a new building, a building that will cost about the same sum, at least $75,000 or $100,000 with its equipment. The trustees cannot go forward with the building of this building until they have the money, and the money must come, and if those who feel the need of it, if those who are here to-night really address themselves to the task, there is no reason under heaven why that building should not be under way when we meet again, a year from to-night."

Following President Harper's remarks a song was rendered by Mr. Clark.

THE TOAST-MASTER—"I cannot refrain from commenting on the fact that the College which is represented by the next speaker has come rather prominently before the public in the past few years through Prof. Greene, with his system of wireless telegraphy. I am sure I need not say to those of you who attended the commencement exercises this afternoon that it has fully sustained its reputation without the connection of a visible wire. Notre Dame University has this day established a connection with Rush Medical College which will long continue, not only by the presence with us of its esteemed president, but by the superb address we had the pleasure of listening to this afternoon. I have the pleasure of introducing to you Rev. Andrew Morrissey."

THE PHYSICIAN AS A PUBLIC MAN.

RMV. ANDREW MORRISSEY, C. S. C.—"I am profoundly grateful to you for the invitation extended to me to speak to you at this banquet. As I had the privilege to speak to you at length this afternoon, and as you are to listen to many distinguished speakers here to-night, I feel the duty imperative on me to occupy but a very small portion of your time. I wish once more, however, to give public expression to the great gratification which I feel in being with you here to-night, and I wish to again repeat what I said this afternoon that every effort made to bring into closer relationship the, great educational institutions of the country ought to find a responsive echo in the heart of all educators.

By many who are asked to make after-dinner speeches the excuse is frequently given that the subject on which they are asked to discourse is one about which they know nothing, or which offers to them no new ideas. I have no such apology to offer, I know the subject well enough to know that the great and only difficulty with me is, not what to say, but what should be left unsaid. The subject, 'The Physician as a Public Man,' is one indeed that embarrasses me with its greatness, fitted for a volume rather than a few desultory remarks. As a public man the physician has to deal with many subjects that tend to promote the public good. As an official of our city government, he has to study the causes that may lead to an epidemic of diseases and to try to get the preventive that will remove these causes. His efforts lead to the welfare of the state. He must be interested in whatever pertains to the common good of the community. No one more readily gives helpful advice or lends greater energy to prevent contamination of the air we breathe through the many agencies that tend to make it impure, to supply wholesome water, to provide means for quickly and effectively removing garbage and sewage, to inculcate the absolute necessity of faithful compliance with the ordinary laws of hygiene, in a word, to promote the cleanliness of city and home and the welfare of the citizens.

"And while we realize the conscientious and onerous duty that the physician as a public man has to perform in the exercise of his profession, we should not forget that the governments of the people have duties likewise to the physician. The medical profession should be protected by strict medical laws that will prevent the recognition of any form of quackery. Unfortunately at the present time every catch-penny advertising quack is placed on the same plane as the regular physician and people are so badly instructed that they accuse the regular physician of bigotry when he resents the insolence of charlatanism, and we would have protection for this profession in no better way than the means suggested here by that eminent educator, President Harper, of the University of Chicago, and that is, to raise the standard in all departments.

"We have reached an age in intellectual activity when mediocrity in any profession will not be tolerated, and I am glad that we here in Chicago are the first to realize that, and that we are very much wide awake to the needs of the time. And I hope that the day is not far distant when the recognition will become so great that we shall have in the cabinet of the President of the United States a secretary of public health (Applause). That is, that a department of public health will form a part of the executive administration. The large cities of the seacoast, on the oceans and Gulf of Mexico, expose people to all kinds of infections,—the yellow fever from the tropics, the dangers that threaten us from our new possessions, and the tide of immigration coming to our shores, make it imperative that we should have those to whom we can look for the intelligent solution of the problem of preparing means to guard against those dangers.

"I am glad, gentlemen, to be with you here to-night, and I assure you that I shall go back to our little College in Indiana inspired by the work that I have seen here this afternoon, and by the words of wisdom that I have listened to to-night, and now my effort shall be, as I know it is here, at the University of Chicago, to make our work better, to advance the standards in every way, to try to have our course ever upward and onward, so that we may be in touch with the leading educational institutions of the country.

"I said at the beginning that I was only going to say a few words. In conclusion let me say, may this gathering of distinguished men around this festive board to-night be a harbinger of great things in the future, and may the spirit of the occasion ever animate us, spurring us on, one and all, to higher efforts in the common cause of humanity, education and country".

THE TOAST-MASTER.—"There is only one point on which I would like to differ with the last speaker. Those of us who have gone through the fine buildings and seen the number of students at Notre Dame University will object to calling it a 'little institution'.

"By the way, gentlemen, I heard a story the other day told of man who occupies some political prominence in the state—not the gentlemen on my right (referring to Mayor Harrison). that during the late Spanish unpleasantness, a company of good women in one of the small towns of the state desired to help one of the regiments and went to work and made a quantity of pajamas for the soldiers, and sent them up to this official to whom I referred, and heard nothing from them. Later, becoming somewhat anxious about their contribution to the military cause, they sent him a dispatch, 'Have you these pajamas?' To which he responded, 'No, it is a base political slander of my adversaries, I never had the pajamas.' I am going to introduce to you this evening a man who has most wonderfully overcome all the slanders of his political adversaries. I would like to introduce him properly to you, but I cannot do it in any original way better than the way in which he has been already introduced to the people of our city, as 'The young Lochinvar of the West'".

DOCTOR AS A CITIREN.

HON. CARTER H. HARRISON.—"When the committee having this matter in charge asked me to attend to-night and make an address, I told them that owing to the multiplicity of the duties I was engaged in at the City Hall at present, it would be utterly impossible for me to prepare any remarks; they told me that all that would be required would be to say a few words, and they probably meant the fewer the better.

"In studying over the situation as to why I should be asked to speak to-night, the only really good explanation I could think of was the fact of my early connection with Rush Medical College. I suppose that connection is probably not known to many of the gentlemen, but the fact is that I was connected with the College before any one here. In the summer of 1860 I started in living on the northeast corner of the block on which Rush Medical College is situated, and lived there for six years. The entire block was the old family homestead in those days, the first home my father ever owned in Chicago. I have played many a day on the ground on which Rush Medical College is to-day spreading its seat of learning. The fact of that connection with that block led to a little intercourse between myself and the trustees of the College only a short while ago. It seems they had some defect in the title that was necessary to be cleared up. They sent over word with their lawyers, asking if we could give a quit claim deed I suppose they did it with fear and trembling, but to show them that some politicians can be honest, we gave them a quit claim deed and did not charge them a cent for it. I think that in speaking of the great things that had been done for Rush Medical College they should have mentioned the fact that the Harrison family had been a benefactor in the past year.

"When I was first asked to speak I supposed it was to be on the subject that every Mayor has responded to since the days of William Ogden, down to the present time, that is, the subject of Chicago—the fact of the matter is that I have a very nice little address on the subject of Chicago that I have given on numberless occasions for the last two years and I suppose the reason that that subject was not given to me was the fact that this committee had heard it delivered and thought they would save you the trial and tribulation of listening to it again .

"The other day I noticed the committee had given me the subject of the 'Doctor as a Citizen', altogether, thinking that over in my mind, going to and from the office, I thought it was a pretty good subject. To-night they have put me down for an 'Address'. They probably thought that I was not competent todeal with the doctor as a citizen in the manner that the subject demanded and possibly my capabilities are not great enough to deal with all the great things which a doctor may be capable of as a citizen. And in that respect I think the committee has shown very little confidence in me, in fact a great deal less confidence than I have a number of times shown the profession of medicine. That recalls to my mind one instance where I think I showed greater confidence in a physician than a man ever showed to any other man, and that was during my campaign for the mayoralty last spring. In glancing around I see the handsome face of a throat specialist to whom I went several times for treatment during that campaign, as my throat was in very bad shape, and I allowed that doctor to treat my throat and he was wearing a Zina* button all the time. If that isn't confidence, I do not know of any man showing it to another man.

"In considering the toast that sought to have been assigned to me, 'The Doctor as a citizen,' it is only necessary to ask what constitutes a good citizen in order to make out whether the doctor fills all the requirements. The citizen is merely a man who works with high ideals for the community where he lives and puts his moral and intellectual attainments above its material benefits, who works always for the highest and best in municipal or state or national life. And I think if we judge the doctor by that standard, we will all admit that he is not only a good citizen, but he is one of the best of our citizens. The responsibility of his position necessarily makes him a good citizen, the responsibility that rests upon him at all times holds him in check, where possibly those in other professions may be likely to go astray. For that reason, as I say, I think it might be said that the doctor makes the best of all citizens; possibly it might be said that the better the doctor, the better the citizen. That might, however, be objected to by some of those present here to-night who will probably say that all doctors are good and on that point it might be well to call their attention to the old saying that prevailed among my forefathers down in Kentucky, which was to the effect that all whisky is good, but some whisky is better than others. You might say in the same way that all doctors are good but some are better than others. Chicago, however, is singularly blessed in its great physicians and its great surgeons. It would be impossible to mention names here to-night; the fact of the matter is, I suppose, in order to mention them properly it would be appropriate for me to call the catalogue of all the gentlemen present, so I will refrain from particularizing. But certainly our city is gifted beyond almost any other city in America in the character of its great physicians and its great surgeons. We can certainly congratulate ourselves on the fact that we have these great doctors in both branches of the profession; most of all we can congratulate ourselves on the possession of the great medical schools that we have in this city, and referring to that, while possibly I am not as well posted as I ought to be on the subject, still from the knowledge I have gained I have always felt that Chicago has the greatest medical schools of the West, and among the great medical schools of Chicago there is none onwhich Chicago can congratulate herself more thoroughly, or the West either, than on the great possession of the great institution of medical learning, Rush Medical College.

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*Button of opposition candidate. Ed.

"I feel I have already trespassed too far on the limits of my time this evening. I will merely in conclusion thank you for the courteous attention you have given me and only regret that the size of my family will not permit me to engage you all to-night as family practitioners."

THE TOAST-MASTER—"Rush Medical College to-day has shown that it knows how to govern the man from Canada. When I was there at the last meeting of the British Medical Association, at a dinner given at the close I heard one of them say that when Lord Nelson at the battle of Trafalgar gave out the signal, 'England expects every man to do his duty,' that was good enough for an Englishman, but a Canadian did his duty whether he was expected to do so or not, and we will be pleased to put that to the test to-night. I have the pleasure of introducing to you Rev. Mr. McCaughan, who is one of the latest importations from that important neighbor."

HEROISM.

REV. W. J. MCCAUGHAN.—"My subject tonight is 'Heroism.' The ancient conception of heroism came from the idea that man was associated with the gods and as civilization increases we may not get away from that old conception. We realize to-day that we are a mixture of deity and dust and the difficulty with men in your profession is that you are so accustomed to deal with the dust you are apt to forget the deity.

"Heroism is associated with a great many nationalities, but it is especially associated with your profession. It is said that in Great Britian more than 50 per cent. of the soldiers who have won the Victoria Cross are members of the medical part of the army,—men who face danger and death in very difficult circumstances. And another cross, the Alfred Cross, which is only given to civilians, has also been won for the most part by doctors who have discharged duties that more or less entailed almost certain death to themselves in order to save some patient or some friend. While these things exist, it cannot be said that heroism even of the ideal character is altogether destroyed. A nation or a profession that has no ideals has lost its safeguard. We live more sometimes than we are inclined to allow, in sentiment, and the strength of a nation is very often traced by the ideals towards which the profession or people are striving.

"There is no question but in the medical profession there have been ideals, and their ideals perhaps have clashed less with the materialists than the ideals of other professions.

"There was one conception of heroism in the olden time that may be applied to your profession, and that is the conception of destruction. The old heroes destroyed. What did they destroy? They destroyed things that were hurtful, hurtful to the nation to which they belonged. And for what does the medical profession exist? Is it not for destruction of harmful things? The newspapers of our city would make us believe that Chicago water is filled with bacteria, and the medical profession of the present day seems to deal more with the destruction of microbes than ever before. All disease seems to develop into that particular direction, and the destruction of the disease-giving germs seems to be the great aim of medical life.

"But it is not enough that heroism should be destructive in its character, it is also essential that it should be constructive, and there is nothing so difficult as to develop a constructive heroism. It is easy to have an idea of destructiveness, but men who have been successful destroyers have had no ability to reconstruct what they have destroyed. In the case of the heroes of the olden times there was the conception of duty, and the doing of duty because it was duty. There are two lines that seem to govern man, one is, doing what we like, and the other, what we ought, and there is no calling in which there are so many temptations to do what you like as in your profession. You occupy in many respects a high position in the community, to you belong many secrets of the home, you exercise an influence perhaps as great, if not greater than any of the other professions, and the tendency is to do as you like in such a position, for such exultation seems to endow you with special liberty. But the great secret of heroic success is to do as you ought. Your profession, like all other professions, has great temptations. There are nearly as many medical men as there are religious men and it is often hard for young men to resist the temptation to do what they like for the sake of present success, rather than to be heroic enough to do what they know they ought to do·

"Besides, there are other aspects of constructive heroism that naturally appeal to those who dare adhere to their ideal. Whatever ideal you have, I would have you press towards it. Destroy all that is hurtful, try to do all that you ought and though you may not in a material sense be a success, yet you will realize when your work is done that you have made a life and not merely made a living."

DOCTOR AS EXPERT WITNESS.

THE TOAST-MASTER—"You have noticed that I have not had the privilege of calling on Mr. Hynes to respond to the toast which is set opposite his name on the program. We have a letter from him here in which he states that he is unfortunately so occupied with a pressing case in court that he is entirely unable to be with us this evening. He was to have spoken to us on the subject of 'The Doctor as an Expert Witness,' and perhaps some of us will say, the less said on that subject the better.

"I will interrupt the program if you will permit me, by introducing to you a gentleman who will speak to us for a few moments,—Dr. J. R. Webster, of the Alumni Association of '58."

REMARKS BY DR. WEBSTER.

Dr. J. R. Webster.—"This is not the place nor the time to deliver a long essay or dissertation. Any one with an ambition to do that would better write it out, read it by title and publish it in some journal; but I will mention a little circumstance that occurred along in the early part of the 70's; a great many of the old members will recollect the circumstances, especially if there are any present that were running on the Republican ticket at that time, for they never would have forgotten it. It was the time when there was a general landslide of the Republican party. There was a general election throughout the United States for congressmen, and the election took place and all these celebrated congressmen that had been in Congress for years, ever since the war, some of them before the war, were all left at home, and the Republican party to-day hardly has an idea of what was the cause. Now, if they had been good diagnosticians, they could have told that very easily. When you next go down to New England where everything good and about everything bad originates, especially in these latter days, there you will see that the Republican ticket at that time was headed by a celebrated doctor, a notorious quack, one of the greatest quacks in America, who had made himself many times millionaire by the vending of his patent medicine and more especially his patent pills. They were a legal tender all over the western portion of the state; if a trade or exchange was made and the people had no change, they would put in some of those pills and use them for change. And that man's name was Dr. Ayers, who headed the ticket in New England, and now after the election took place and throughout almost all the western portion and throughout the different portions of the different states where the wires ran into the club houses to deliver the reports of the election, there was hardly a Republican club anywhere where the news came in the right way; those celebrated congressmen from New England and Pennsylvania and all over the great Northwest were all running behind and the world was wondering what was the trouble, what was the difficulty. You would see Republican men catching one another by the coat and speaking to one side, wanting to know what the great difficulty was in regard to this election, and if they had been good diagnosticians they could have divined the reason at once why those congressmen ran so far behind—they were behind because they had been using Dr. Ayers' pills.

''Now, I brought that in just merely to show you a little something in regard to diagnosis. These young men that have just graduated, ask us, 'what branch of study would you recommend us to follow so as to make good diagnosticians.' Now that is a question that it is necessary for people to understand very early in the practice of medicine. If there is one thing that you want to find out early, it is the question of diagnosis. You will find that nature has a great deal to do in that department,—with that keen discrimination that is necessary to use after examining a patient carefully and critically, that will tell you why it is, what it is and what then. There is the point, gentlemen. Now, in regard to that, you can acquire a great deal of information that would be of vast benefit to you upon the lines of anatomy and physiology and, my young laboratory friends will say, also including bacteriology. A very good suggestion, indeed, my friends, and one that has been the means of revealing a great many points of pathology. And not only that, but it is a very easy way of explaining a great many pathologic manifestations, and if bacteriology had never done anything more for the medical profession than giving to us the bacilli of tuberculosis, diptheria, cholera and the infectious forms of fever, it would have been a great boon to the medical profession, besides saving many lives of the human family. But do not forget to keep your eye on anatomy and physiology, because if a man is a good anatomist, he will make a good surgeon, and if he is a good physiologist, he will make at least a very reputable country doctor.

''By the way, gentlemen, it would be a very good thing if some of our city officials understood a little of that branch of our profession. Now, it has become very customary of late to elect and appoint a great many special professors to the faculties of our medical colleges, as well as literary colleges and universities, men representing every ''ism,'' every ''pathy'' and every fad that has become a little popular in a community, and I understand that there is an attempt made by some of the zealous members of this Association to raise a fund for the purpose of appointing a professor from the Alumni Association to this College. That, my friends, is a good suggestion and one that ought to succeed. We have some five or six thousand graduates from this medical department and if each one of those physicians that have graduated from this college would give a few dollars, it would be sufficient to support a professor for the purpose of original research. And I feel this evening that every graduate ought to pay something for that department and I am willing to obligate myself this evening to pay $100 for the next five or ten years to support a chair (the speaker was here interrupted by loud applause). Now, that is a good start-off, but, gentlemen, do not be too fast, I have a little provision on the end of that string and that is this, provided, however, that you appoint an expert X-ray examiner and let it be a part of the duty of that professor to take a skiagraphic view of every man's brain that comes to this institution to attend lectures and if he finds on examination of that brain that it lacks in depth and breadth of the convolutions of the cerebellum, with an abnormal development of the cerebrum, let that professor counsel him to return immediately to his home and let him commence to labor hard to keep himself out of the poorhouse or the penitentiary and by that means our legislators would not be called on every few years to make large appropriations for the purpose of building new asylums and penal institutions, and it would be a great honor to this Association to tell other institutions of learning that that is not only new and novel in its character, but it is strictly and fairly on the line of original investigation.

"I was very much pleased last fall when I picked up a Chicago paper and read in it an account of our good and great President McKinley going through the Northwest ostensibly for the purpose of visiting the fair at Omaha, and likewise also to feel the pulse of the people on the great question of acquiring new territory. What I want to draw your attention to is this,—on his homeward journey, when he arrived in this great city, he had hardly had time to rest himself and put a clean shirt on before that indomitable worker, President Harper, took him by the hand and led him out to the University of Chicago at the head of a procession a mile and a half or two miles in length, notwithstanding the inclemency of the weather, the procession being composed of students, professors, doctors, lawyers, druggists and in fact all good citizens of this great city, and then and there bestowed upon him the grand title of LL.D. Now, my friends, did you ever know that man Harper to go after anything but what he brought it home with him. (Applause). And he will not tuck it away in the northeast corner of his vest pocket and take a circuitous route to get home, but he will go straight home with a bushel-basket full,—a man, my friends, that is always alert in hunting up something good and grand that will redound to the honor and glory of that great institution of which he is the head and trunk, and a man that knows well that the perpetuity of this great country of ours depends upon the education and patriotism of her people. But it has been reserved for that broad-minded statesman, President McKinley, to be made the first LL.D. of this great institution of learning, a man that was delegated by the people of the United States to take the initial step of teaching the governments of those Oriental nations to treat their people humanely.

"There is another reason why a person should not speak very long after dinner. It has been said by writers of physiology that a person should not speak on a full stomach. I do not think there is any person sitting in proximity to me this evening that doubts for one moment that my stomach is reasonably full, and I am a little tender on that subject, my friends, from the fact that I know of a number of very prominent physicians living in the northwest portion of the State of Illinois that have made a very good living by people not heeding that injunction.

"In this land of liberty and freedom of ours, with the finest institutions of learning in the world, with useful knowledge of every chapter, thoroughly disseminated through the minds of the people by means of the public press, we expect our young men who have received the facilities of education to succeed, and if they do not succeed, we know very well where to place the blame. Situated as we are, between the great eastern and western markets, with railroad facalties that cannot be surpassed anywhere in the country, with our magnificent churches and our grand universities, and more especially the University of Chicago with its grand old annex, Rush Medical College, and the high school implanted in every village throughout our land and also our good and beautiful city, we have every reason to believe that we can make our home and our country everything that is desired of men."

THE TOAST-MASTER.—"In approaching the subject that the next speaker will treat of, I was reminded of what Dr. Coleman of Alabama told us two weeks ago of a darkey who came to him one day and said he had a 'misery' in his back and asked the doctor to give him a 'subscription.' The doctor said to him, 'Sam, I do not think it is necessary to give you a prescription, I can give you something out of my own case,' which he proceeded to do, whereupon the darkey surprised him with the question, 'Dr. Coleman, is you a homeopath?' 'Why, no,' said the doctor, 'Sam, why did you think I was a homeopath?' 'Why,' he said, 'Doctor, I know there is two kinds of doctors, the one kind issues the subscription you give to the druggist, and the other kind is the one what gives you the medicine in his own home, that is the reason he is called homeopath.'

"I am going to introduce to you a speaker who will say something to you about the doctor in his own home, and his subject is 'Marriage,' DR. JAMES.

(*To be Continued.*)

CLASS POEM.[*]

By William David Byrne, '99.

I.

PERSONAL HISTORY.

The grateful firelight flickers in and out,
Casting fantastic shadows o'er the room,
And o'er its furnishings, for service made
Rather than ornament. The well-thumbed tomes
All scattered lie—reminders of the four
Hard years of college work, years not unmixed
With happiness as well. At least so thought
A student musing there, upon the eve
Of his last day at school, and glancing down
The dim aisles of the past, with mem'ry's aid
Renewed the rainbow visions of his youth,
When starting forth like Ulysses he sought
The Golden Fleece of Knowledge.

Every man
In this great class of '99, like him
Must feel the change wrought by these four brief years.
Who can forget the reverential awe,
When as meek "D J's," back in '95
We sought the topmost seats and from that "perch"
Gazed on the famed Arena, where perchance,
Shuddering we saw dear "Jimmy"[†] quick excise
The *testes muliebres;* or mayhap
Flattened out against the wainscoat dim,
We gazed admiringly upon the learn'd
And stately (!) Seniors, as they quickly sought
The "first two rows," their rightful heritage.
Perhaps 'twas Monday and the polished Hyde
Was stirring up those rows with jocund quiz,
Or mayhap Thursday and the brilliant Senn
Had two pale victims quaking in their shoes,
In vain endeavor to appear at ease,
While everyone laughed at their "status praesens."

II.

PRODROMUS.

But time works wonders, and our timid air,
Soon left us, as our fetal lungs enlarged

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[*] Presented at the Class Day Exercises of the Class of 1899, Rush Medical College, Chicago, May 22, 1899.

[†] Our lamented Professor of Gynecology, Dr. James H. Etheridge.

To manhood's size, in Rush's rich ozone—
It left us panting, like brave knights of old,
To ruffle it with the best, in hall or street,
Or laboratory.
But yesterday it seems,
All this occurred; to-day the stage is ours,
And ours the chance to make or mar the scene.
The useful "pony" overworked is dead,
The rough play of the benches and the jokes
At recitation, all are gone, and in
Their stead the real work of life begins.
For step by step we've won our upward way,
Thro' branch on branch, until at last we stand
Upon the threshold of the great wide world.
With earnest faces waiting Fortune's call.
'Tis now we see the role we've played in these
Departed years, 'tis now we realize
That, as the chemist skilled in synthesis,
From simple elements builds compounds new,
So have our teachers step by step improved
Our cruder minds, until at last we pass
Their crucial tests, and win our proud degree.

III.

STATUS PRAESENS.

As standing here to-day in sober mood,
We look upon the golden-tinted fields
Of life spread out before us, each must feel
The consciousness that perfect growth and fame,
May be attained by living up to that
High standard which our school has set for us.
Each and every student here must feel,
The greatness of the trust in him reposed.
For come we not in contact with the lives,
The fortunes and the honor of our kind?
The doctor must all mankind frail befriend,
Giving to humble Lazarus the same
Kind treatment that rich Dives would command.
Therefore must tact and kindly sympathy,
Be used with lavished hand, and they will grow
By what they feed upon.
The healing art
Divine, will best be served by those who come
Prepared to give the best that in them lies.
Having for proud reward that high and noble one—
The consciousness of duty well performed.
Each one of us can readily create,
A circle wide of influence for good.
For our high privilege it is to help,
With sympathetic brain and heart and hand,

The victims of disease wherever found.
The age is here when men acknowlege that
A higher aim in life, than search for pelf
Exists. And so our destiny shall be
Both great and glorious, if following
The Golden Rule, we strive to give our best.
O let it be our dearest boast in life,
That truest gentlemen we've always been,
And worthy the high trust in us reposed.

ENVOY.

Now that in college halls our tasks are done,
And that the haunts we've loved, shall nevermore
Be quite the same, e'en should we visit them
In after years, naught then remains for me,
But utterance of those sad words—"Good-bye!"
And from my heart of hearts I wish God-speed
To each and every comrade in this room,
Who goeth out from these loved college halls,
To battle with disease and to proclaim
Old Rush's signal merit and fair fame.

CLASS HISTORY.*

By Richard J. O'Connell, '99, Chicago.

Members of the Faculty, Fellow Classmates, Ladies and Gentlemen:—The year '99 so eventful for us, is rapidly approaching its term. And ere our class with all its associations becomes a thing of history, ere its pains and its pleasures, its bright and its shady spots join the throng of things "that were," it seems meet that we flash on the canvas of memory some of the scenes through which it has glided, and give them at least passing notice.

It appears like ancient history to us now, but we all well remember the awe inspired in us when we first came in contact with our honored professors. After listening to their words of length and learning we concluded that these men must have come "Full panoplied from the brain of Jove," and it took time to convince us that they were not more than men.

Our dislikes for "stiffs" and skeletons were, as it will ever be, a subject of mirth to the unregenerate.

How many of us have been awakened in the night by the terrible feeling that we were dissecting a skeleton? (For answers the class is referred to Kleinschmidt, Frank Jones and E. Ehlert). How many of us "burned the mid-night oil" —preparing points for the next day's "exam."

Then our intercourse with the men of other classes was something new for very many of us. The men of the class of '97 were in the opinion of all of us very, very peculiar. If we displeased them they passed us up and if we did not we were passed up anyway. When we remonstrated with them they would say with contempt, "you are too verdant." They had more men than we and in our conflicts and rushes we were never able to do better than get second place.

But, if outnumbered by other classes, we were never excelled, and I question if we were ever equalled in good conscientious work, as is evinced by the number of interneships secured by competitive examinations, the very high averages attained by us individually, and by the very few of our original class who failed in their examinations.

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*Presented at the Class Day Exercises of the Class of 1899, Rush Medical College, May 22, 1899.

Our standing in class was accompanied by a record for gentlemanly behavior which was the admiration of the Faculthy. The class of '99 will ever feel justly proud of the fact that they in a measure banished "rowdyism" from the halls of "Old Rush," and they feel deeply grateful to all the Faculty for their efforts in this particular.

In the Chemical Laboratory we far surpassed other classes. We covered ourselves with glory and the various chemicals. Several of our number discovered unmistakable signs of diabetes by their analyses while there—prominent among whom I would mention Nauman, Medill and Maxwell; this fact preyed on their minds so much that they sought Prof. Haines who plainly showed them that they were victims of a conspiracy and sent them away happier and wiser men.

To praise our dissections would be beyond the power of the most gifted, because we found everything that was required, and many things that were not there at all, for instance Percy in making his dissections of the head found the Bartholinian gland in the lower maxilla.

We have some phenomenal specimens of the "Genus Homo" in our midst. To illustrate: There is a man in Sec. A. who recently discovered that his digestive organs (to use his own words) possess the quality of changing starch into common everyday granulated sugar. One of the bright lights of Sec. B., while examining the contents of a stomach under the microscope, discovered, do not ask me how, bladder epithelium. And not to be outclassed, a man in Sec. C. comes forward with the announcement that there are vicious fluids coursing through his veins. The fate of our medical friend from over the Indian Ocean ought to serve as a warning to the men of 1900—for it does seem a little preposterous to suppose that the size of a man's thyroid should be within hailing distance with that of the Isthmus of Panama.

The most important event occurring during our time is certainly our affiliation with the University of Chicago. Great benefits will most assuredly accrue to both institutions from this union; it will be the means of adding to the renown already acquired by both and must be followed by the best of results. It has already had a good effect on the Faculty and also on the curriculum of the College. Too much praise cannot be given those who brought about these happy arrangements and I would mention especially Profs. Senn, Hyde, Ingals, whose memory the students present and future, will hold in benediction.

Another great advantage to the student body is the establishment of a student's library which was a "consummation devoutly to be wished," and only made possible through the zeal and energy of the Faculty. These benefits, together with the abolishing of that barbarous system of passing up, place us under many and deep obligations to the noble men who took such kind interest in our welfare and advancement.

Our athletics:—The old motto of "a sound mind in a sound body" has never been forgotten here, and therefore we have football and baseball teams; and, while they may not have won as many laurels on the gridiron or the diamond as they might have, there is one thing that can be very truthfully said to their credit, viz.: That they left no money in the treasury for grasping or unscrupulous successors to squander or misappropriate. This may be explained by the fact that the class of '99 paid more attention to their note-books and dissecting knives than they did to the pig-skin or the ball bat; and that they were more expert in the recitation-rooms than on the athletic field.

This hurried sketch of our class would be less complete were I to pass over the time-honored recital of our endeavors ro raise beards. To the average medic a mustache is a thing of beauty and burnsides are a joy forever. On the roll of honor in this connection Ireland, Hering, and Piper easily lead the van, and who has not admired the beard of Shinnick and J. Kleinschmidt's mustache, and the ability and ease displayed by Hunte, James and J. G. Roberts in raising hirsutes. But when it comes to giving an opinion as to the proper cut of a few white hairs scattered over an unlimited space of jaw; or that you are told in confidence by a youth whose appearance would give you the impression that his eyebrows had fallen on his upper lip, that he does not think he can bear his beard during hot weather, you sigh for a club or the prompt services of a "fool-killer."

A word about our class elections—the class of '99 is to be congratulated on the ability shown in the selection of its officers—and the officers are to be complimented very highly on the efficiency and promptness with which they performed their various duties. In our freshman year the presidential chair was very creditably filled by P. A. Wakefield. Technicalties bobbed up at intervals and the ability and tact with which he disposed of them were a marvel to all. The sophomore year found the genial Purtell in the executive chair. To say that Joe's administration was a "howling success" from every stand-point would be putting it mildly. E. C. Franing occupied the presidential chair during the junior year and that he succeeded only in making friends speaks volumes in behalf of his capabilities. To select the best man in the class to fill the presidential chair has been the custom followed by the junior classes of Rush for years past. Recognizing John E. Stanton, as such, we elected him last fall, and that he has fulfilled the expectation we then entertained of him is beyond the shadow of a doubt, and I may add he still retains the record on which he was elected. If the class of '99 is anything, it is cosmopolitan. We have men of every race, color and belief and therefore it is not to be wondered at if parliamentary rules were sometimes transgressed on during the deliberations of our class organization. When ends were to be attained oratory, log-rolling, yea, and even the "festive pull" were employed to reach the desired object. We adopted Robert's rules for the government of our deliberations; but when discussions became heated all rules were abandoned and the loudest voice was often taken for the strongest argument. But with all our little difficulties, our organization is one of which we feel justly proud and the admirable arrangements perfected and carried out by the members of the executive committee give testimony to its efficiency louder than words.

It is now my sad duty to pay tribute to those who during our college life have joined the silent majority. In our freshman year we laid to rest or kind professor of histology, Dr. D. D. Bishop, and our classmate J. C. Bennett. We paid them the tributes of respect that the honored dead receive, we laid flowers on their bier, we accompanied their remains to their last resting place and drafted resolutions of sympathy and confidence. But it was in our senior year that we were called upon to mourn for friends rendered dear to us by a knowledge of their many estimable qualities. Professors James H.

Etheridge and John B. Hamilton have both gone to "That undiscovered country from whose bourne no traveller returns," and left us the recollection of well spent lives and of favors rendered us which we will ever safe-guard as a sacred inheritance. And last but not least our beloved fellow classmate, M. Frankenstein, whose future was big with bright promises, who had endeared himself to all the class by his many acts of kindness and courtesy, and of whom it could well be said:

"He never caused a tear to flow.
But when he died."

"Fellow classmates," it now develops on us to make good the expectations our friends entertain in our regard and of which our auspicious beginning gives such assurance. This we can do by living up to the high ideals and honorable principles inculcated in us in our college home; by never debasing our noble calling for any reason however patent, by being neither mountebanks nor quacks, but good legitimate practitioners, and thus will benefit mankind and honor to Alma Mater, Dear Old Rush,—God bless her!

The Corpuscle

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Readers will notice several items of interest in this, the July number of the CORPUSCLE concerning events which occurred early in June or late in May. The editors have not been tardy in noticing these, for our readers will remember that the June number was published May 20, on account of the commencement program therein. This month we give a stenographic report of the Alumni Banquet, at great expense, and also have the papers presented before the Alumni Association as well as those presented on Class Day—which space does not permit publishing in this number—for future numbers; and there are other good things in store for CORPUSCLE readers. Send in your Alumni dues, $1.50, to Dr. J. E. Rhodes, 34 Washington St., Chicago. Payment of these dues secures you the CORPUSCLE free for one year. This, the July number will be the last sent to those in arrears.

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We have the pleasure this month of presenting an excellent likeness of Dr. P. A. Wakefield, '99, who, on his graduation from Rush retired from the business management of the Corpuscle. Dr. Wakefield has won many laurels during his medical course and not the least of these has been his work on the Corpuscle, formerly as editor, later as business manager. We learn that he will practice in West Salem, Wis., and in his new field of labor we prophesy naught but success. Mr. W. Murray becomes business manager of the Corpuscle, with this number.

STUDENTS' LIBRARY.

The Faculty of Rush Medical College have organized a medical library for the students, as previously mentioned in the Corpuscle. It is known as the Students' Library, is pleasantly situated on the fourth floor of the building adjacent to the Laboratory Building, and is furnished with the latest improved library furniture. It was opened to the students on March 15, with about 250 volumes from the Pathologic Laboratory, and 75 current medical journals. Later was purchased the library of the late Dr. C. W. Earle, containing nearly 500 volumes, and Prof. Lyman, the present Dean of the College, who has taken a great interest in the Library, has presented over 400 volumes from his private library. From members of the Alumni Association 75 volumes have been received, and through the efforts of Prof. Hektoen, who has the supervision of the library, have ~~been~~ purchased many of the latest medical works, so that the Library has now 1575 volumes, and is in regular receipt of 137 current medical journals.

The books are classified by the Dewey Decimal Classification, and catalogued. The Library is for reference only: the students apply for books by filling an application card, and presenting it to the Librarian; before leaving the Library the student returns the book used, to the Librarian, in order that the application card may be checked and canceled. The number of books issued up to date is 1221.

There are complete files of the *Index Medicus*, "Index Catalogue of the Library of the Surgeon-General's Office," *Jahresbericht Gesammten Medicin*, *American Journal of the Medical Sciences*, *Annals of Surgery*, and several nearly complete files of other medical journals.

The Library is about to be incresed by 3000 volumes, the library of the late Dr. Allen, a full account of which will be given in the next issue.

Sincere thanks is due to the following contributors:

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OBITUARIES.

DR. WILLIAM B. LYONS, '65.

Dr. William B. Lyons, Huntington, Ind, was killed by a train May 23. The Doctor was a native of Newcastle County, Del., and born Sept. 2, 1818. In 1834 he accompanied his father to Perry County, Ohio, and in the spring of 1851 located in Huntington, where he has since resided. In 1850 he attended a course of medical lectures in Cincinnati and in 1865 was graduated from Rush Medical College, Chicago. He was also a graduate of the College of Physicians and Surgeons of Indianapolis. During late years he has not devoted much time to practice. He left several requests, written several years ago; one, that he be not given a large funeral but one as quiet as possible, also designating the place of burial and that his body be kept a week in order that relatives be sure he was dead. He also wished to be buried in a home-made walnut coffin. He was one of the oldest Masons in the city, having taken thirty-two degrees in that order.

DR. RICHARD B. WESTNEDGE, '96.

First Lieut. Richard B. Westnedge, surgeon U. S. A., died in Manila, June 10, of typhoid fever. Dr. Westnedge, shortly after receiving his degree from Rush, married Miss Alice Gould, daughter of our lamented college clerk. He then located in Dubuque, Iowa, from which place he enlisted. Before entering Rush he served several years in the Michigan National Guard. He went to the Philippines for service with the Third Regiment, and during his absence Mrs. Westnedge has been living in California.

DR. JOHN W. BACON, '69.

From the Los Angeles, Cal., *Express*, we learn of the death of Dr. John W. Bacon, at his residence in that city, May 17. The Doctor was born in McDonough Co., Ill., Aug. 13, 1838. After graduating from Rush Medical College in 1868, took a special course in Bellevue Hospital—1878.

DR. E. G. REINHARDT, '91.

Dr. E. G. Reinhardt, Roberts, Ill., died early in May, of a complication of diseases. The Doctor had been in Roberts nine years and was 38 years of age. The remains were interred in Bunker Hill, Ill.

ITEMS OF INTEREST.

This copy of the Corpuscle is sent to all subscribers for the college year which terminated May 25, 1899 (the June Corpuscle), and we will discontinue sending it unless $1.50 is sent to the Secretary before the time of publication of the August number—August 1. This notice does not refer to any members who paid their dues commencement week, or since that time.

John Edwin Rhodes, M. D., Secretary,
34 Washington St., Chicago.

Dr. H. G. Wells, '97, is pathologic editor of *Western Medical Recorder*, Chicago.

Dr. Frank Pomainville, '99, according to the *Reporter*, of Grand Rapids, Mich., is fitting up offices in that city.

Dr. E. P. Andrews, '99, was editorially complimented on his graduation from Rush by his home paper, the *News*, of Lodi, Wis.

Prof. N. Senn delivered the commencement address at the Galesburg (Ill.) Hospital Training School, recently.

Dr. John Freeman, '97, now of Topeka, Kan., spent a few days in Chicago commencement week.

Dr. Morley Bates, '96, of the staff of Homestake Hospital, Lead, S. D., is in Chicago on a few weeks' vacation.

Ass't. Prof. H. N. Moyer was chosen president of the Illinois State Medical Society at the last meeting.

Dr. S. E. Findley, '97, is located in Mansfield, Ohio, and working up a fine practice.

Ass't. Prof. F. H. Montgomery, '87, was elected secretary of the American Dermatological Association, at its recent annual session.

Ass't. Prof. A. I. Bouffleur, '88, has been chosen president of the International Association of Railway Surgeons.

Dr. A. W. Dowd, '99, Milwaukee, was favored by a brief comment and his picture in the *Milwaukee Journal*, May 22.

Drs. R. J. O'Connell, J. E. Stanton, W. D. Byrne and A. W. Dowd, all of '99, were given "write-ups" and their pictures published in the *Chicago Chronicle*, May 21.

Prof. A. C. Cotton was the guest of honor at a banquet of the Will County Medical Society, Joliet, Ill., June 20. The Doctor presented a paper on "Children's Diseases and Their Treatment."

Prof. J. N. Hyde was recently appointed delegate to a congress on venereal diseases etc., to be held in Brussels, Belgium, in September. We learn that the Doctor will not be able to accept the honor.

Dr. J. P. Sedgwick, '99, made a short visit in and about his Nebraska home late in May. He is now on duty in Alexian Brothers' Hospital, Chicago.

Assoc. Prof. R. W. Holmes' paper on "Inversio Uteri Complicating Placenta Previa: Etiology and Mechanism Considered," noted in a previous CORPUSCLE as having been read before the Chicago Medical Society, is printed in *Obstetrics* for June.

Dr. B. C. Gudden, '96, Oshkosh, Wis., who was recently sued for damages by a patient, on the ground of not having treated a fractured patella properly, has come out successful in the suit, the jury finding that the Doctor had not been negligent in the treatment.

Prof. E. Fletcher Ingals contributed a paper on "Larynxology in America," and Dr. Frank A. Stahl, '87, Chicago, the article on the "Progress of Obstetrics," in the recent souvenir number of the *Jour. Am. Med. Ass'n.*—a number covering the past fifty years progress in all branches of medicine in America.

Dr. F. E. Wallace, '96, who is located in Monmouth, Ill., is having a very successful practice, especially in surgery, and he has found his interneship of great value. By his help the Warren County Medical Society was organized a year ago and the Doctor is its secretary. At the state medical meeting in Cairo recently, he read a paper on "Diseases of the Pancreas." The Doctor was recently appointed health officer in his city.

Dr. H. A. Patterson, '97, recently opened an office in Joliet, Ill. He has just returned from the Klondike, where he, with a party organized in Joliet, went for a pleasure trip. He tells of many narrow escapes in the rapids, on the ice and mountain trail, and his class mates will enjoy an article to appear in the

CORPUSCLE, entitled "The Klondike and Medicine." The Doctor gained fifty pounds during his stay.

Prof. H. B. Favill was chosen one of the vice-presidents of the Chicago Medical Society, at the election of officers, June 21. Profs. A. D. Bevan and J. M. Dodson were made trustees and Prof. Frank Billings, chairman of the Publication Committee. Prof. Bevan, who retired from the presidency of the Society at this meeting became chairman of the Judiciary Committee.

The Alumni officers for the year ending July 1, 1900, are as follows:

Dr. E. T. Goble, '74, Earlville, Ill., president.
Dr. John E. Hench, '83, Hinsdale, Ill., 1st vice-president.
Dr. J. C. Reynolds, '70, Lake Geneva, Ill.. 2d vice-president.
Dr. John Edwin Rhodes, '86, 34 Washington St., Chicago, secretary and treasurer.
Dr. J. E. Raycroft, '99, Chicago, assistant secretary.
Dr. E. S. Detweiler, '88, La Grange, Ill., necrologist.
Dr. Chas. J. Whalen, '92, Chicago, Ill., editor of alumni department of the CORPUSCLE.

The following students were awarded fellowships and prizes at the annual commencement, May 25, 1899:

The Fellowship in Chemistry—Oscar T. Roberg.
The Fellowship in Cutaneous Pathology—Howard T. Rickets.
The Benjamin Rush Medal—John Fulton Rowe.
The J. W. Freer Medal—Oscar A. Dahms.
The J. W. Freer Second Prize—George Omar Spiers.
The L. C. P. Freer Medal—Martin H. Fischer.
The L. C. P. Freer Second Prize—Walter V. Gulick.
The Daniel Brainard Medal—James H. Fowler.
The De Laskie Miller Prize—Edwin H. Ehlert.

The following named gradutes of the College secured positions as hospital internes, in 1899, by examination and appointment.

Blomgren, Charles Edwin	Augustana
Burkholder, Christian E.	Indiana State Prison Hospital
Chivers, Edgar Eynon	Chicago Baptist
Cooling, William Anthony	St. Elizabeth's
Daniells, Ralph Peabody	St. Luke's
Ellis, John B.	Illinois Charitable Eye and Ear Infirmary
Gallen, Geo. E.	Norwegian Deacon's Hospital
Hegele, Herbert W.	St. Vincent's Hospital, Portland, Ore.
Holman, Carl J.	Norwegian
Irwin, James Harris	Presbyterian
Keller, William Noble	Cook County
Lewis, Dean P	Cook County
Manchester, J. D.	St. Mary's Hospital

Ochsner. Benj. J.	Cook County
Percy, Nelson M.	Augustana
Perkey, Adrain Benton	Presbyterian
Roe, John Fulton	Cook County
Russell, Frank Horace	Presbyterian
Russell, Robt. G.	Great Northern Railroad Hospital, Spokane, Wash.
Sedgwick, Julius Parker	Alexian Brothers'
Shannon, Leon William (alternate)	Alexian Brothers'
Sheldon, John Glendon	Cook County
Shockley, H. Orville	Presbyterian
Sloan, John F.	St. Joseph's
Sturm, Arthur B.	German Hospital
Thomas, Thomas R.	City Hospital, Stillwater, Minn.
Thilo. George, Jr.	St. Elizabeth's
Thompson, Geo. Farnsworth	Cook County
Wiley, Harry Dunlap	Presbyterian

Prof. N. Senn was guest of the evening at the annual banquet of the Sons of the American Revolution in Milwaukee, Wis., May 29, and spoke on "The Humane Side of Warfare." Prof. Senn also figured prominently in the annual meeting of the American Surgical Association held in Chicago late in May and early in June. "The First Aid Package in Military Surgery" was the subject of his paper, and he passed around for inspection, an original first aid package which he hopes the military authorities will adopt. He is now in San Francisco giving a course of lectures in Cooper Medical College. Prof. Brower leaves July 7 to join Prof. Senn in San Francisco, whence they will visit the Hawaiian Islands.

Immediately after the closing exercises of graduation day about twenty-five members of the class of '99 met and organized the Rush '99 Club, which is intended to perpetuate the social features of the class. All members of that class are eligible to membership in the club. There are no dues attached to membership, save only the cost of an annual dinner to be given about the time of the Alumni reunions, and the expense is incurred only by those who take part in said dinner, which is distinct from the Alumni dinner. Dr. Joseph A. Purtell, Milwaukee, Wis., was elected treasurer; Dr. Harry C. King, Weir City, Kan., chairman; and Dr. W. D. Byrne, 6526 Perry Avenue, Chicago, secretary. Among others present were the following: Arthur L. Hagler, Thos. Tomelty, J. R. Trotter, A. N. Chamberlin, E. G. Ireland, T. A. Evans, J. D. O'Connor, W. H. Vilas, L. E. Brownrigg, T. R. Thomas, I. A. Myers, S. E. Gavin, Geo. E. Gallen, Geo. C. Bush, H. E. Stevenson and R. J. O'Connell. All '99 men who desire to join the Club will send their permanent address to the secretary.

PROF. J, C. WEBSTER, M. D.

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Rush Medical College, Chicago, Ill.

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SYPHILIS IN SURGICAL PRACTICE.*

By Arthur Dean Bevan, M. D.,

Surgeon to Presbyterian Hospital; Assoc. Prof. of Surgery, Rush Medical College Chicago.

My father was a physician. One day, when a boy of 16, I was in my father's office when a tall, fine looking man of 35 or 40 came in to consult him, This man was a German-American of considerable prominence. I had often met him before, and had always admired him. He was a great thick fellow, more than six feet tall, with large, brown, shaggy head and beard, deep-voiced, bright-eyed, the picture of physical and mental health; a fine type of that Teutonic massiveness and vitality that has relegated the Latin races to the dying nations of the world. I remember that when I read "Cæsar's Commentaries," with the description of the giant Germans, who disputed Cæsar's advance across the Rhine, and who died so bravely crushed by the better arms and better discipline of the Roman legions, I thought of this man; they were his ancestors. He was a picture of what they had been. After he had left the office I drove with my father on his afternoon round of visits. We had been in the buggy, driving possibly ten minutes, when my father suddenly turned to me and, for the first time in my life, gave me some advice on the subject of sexual intercourse.

He told me of the penalties of promiscious intercourse, the virulence of gonorrhea, the ravages of syphilis. He drew a picture of an invalid wife, a blind child, the man with the blurred brain and the incoherent speech of syphlitic aphasia, and the staggering gait of ataxia. He was a graphic word-painter, and I remember as a boy it made a profound impression on me. And in some way I always associated this, my first knowlege of venereal disease, with the German who had left the office but a short time before. That was 22 years ago. Two weeks ago an old man, of great massive frame, dragging his right leg, shuffled unsteadily into my office; his pocket handkerchief and gloves were almost falling out of his right overcoat pocket; he could not articulate above a whisper, and even then could command but a few words The left eye was dulled with an old iritis; the right eye was reddened by an acute attack; the pupil dilated unevenly with the atropin; the hands presented syphilitic skin and nail lesions; and this wreck was my German, the German whom I had idealized, plus syphilis. With some difficulty I obtained his history, and, most interesting of all, the fact that he had always denied to many physicians who had treated him for 20 years for various lesions, principally if not entirely syphilitic, syphilis. My father and myself, he said, were the only ones who knew that he had syphilis, because, as he stated, my father had told him at the end of two years of treatment that he regarded him as cured. My father died about that time, and he said no one living knew that he had had syphilis, and he had a family and he could not have any one know, and would I swear to him that I would not tell any one. You are all familiar with the picture I have so crudely drawn, the common picture of syphilis and its concealment, interesting only because of the frame of circumstances which surrounds it.

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*Presented before the Alumni Association of Rush Medical College, May 24, 1899; printed simultaneously in Jour, Am. Med. Ass'n.

When I received my degree in medicine, I accepted a contract position as acting assistant surgeon in the U. S. Marine Hospital Service. I was stationed at the Marine Hospital in Chicago. My duties were to look after the out-patient department of the work. In this department we treated nearly 3,000 patients annually, about one-third of these being venereal diseases, and of these 1,000 venerial cases, many were cases of syphilis, representing all stages of the disease. Syphilis became the first great problem in disease with which I wrestled, and the diagnosis, the vagaries, the treatment, and the tenacity of the lesion became an interesting study, for which later five years of regular service in marine hospitals afforded an abundance of material. The sailor man is as a class easily the point of least resistance in the community to syphilis. His long voyages and enforced continence, and his drunken embrace of bleared-eyed Venus during his short spree in port, make him an almost certain victim of infection, and the fact that he seldom early receives the benefit of proper and continued medication enables the marine surgeon, into whose hands the derelict finally drifts, to study, often, the natural history of syphilis unmodified by treatment. Many of our cases were honestly ignorant of having syphilis; some would deny and later confess to a syphilitic history, when confronted with positive evidence. I early learned to place little or no reliance on the previous history in making a diagnosis!

Since leaving the marine hospital service, ten years ago. I have devoted my time exclusively to general surgery, and in this work I have found that my early syphilitic training has been of great service. I do not mean to pose as a syphilographer, but I am sure that I have been saved many mistakes by this training. I am sure that I have seen many cases which this training clearly branded syphilis to me, overlooked by the specialist, the surgeon, and the general practitioner. On the other hand, I must confess that in a number of cases I have believed lesions syphilitic which were later proved to be of other origin. I have learned to know that syphilis is no respecter of class or person, rich and poor, youth and age, priest and libertine, prostitute and virgin, guilty and innocent. All can and do acquire this disease. We must not be astonished in finding it anywhere. We must never accept a negative history as definite evidence of its absence. Syphilis is more wide spread than is generally supposed. It causes many an illness when it is not recognized or even suspected. Without carrying our suspicions to extremes, we should constantly be on the watch for syphilis in our everyday work.

It is not my intention to present a discussion of typical syphilis, as is done by the syphilographers, in text-books, but believing that a broad discussion of the unusual and often unrecognized lesions of syphilis as they present themselves to the general practitioner and specialist might interest all, I will open the discussion by reviewing some of my experiences with syphilis in surgical work. I might entitle this brief paper, then, "Unusual Syphilis in Surgical Practice." The subject of extragenital chancre will furnish the unusual form in the primary stage. I have handled about fifteen of these lesions which I can now call to mind; most interesting to us possibly are the extragenital chancres which physicians acquire in their professional work. I have seen a number of these cases; the majority of them presented none of the characteristics of chancre and were mistaken for pus infection, or tubercular infections, and later, when the axillary lymphatics were involved and a low form of syphilitic fever was present, the subsequent development of the secondary symtoms cleared up the diagnosis. Several of my cases have been seen by expert syphilographers, and the primary lesion positively pronounced not the initial lesion of syphilis. In one case an expert said that if it was chancre it certainly had none of the characteristic signs, and that he had never seen one like it. In another case, seen by me with a colleague, the syphilographer staked his professional reputation that the lesion was not specific, and yet in both the later secondary symptoms disproved their statements. In both these cases the axillary lymphatics were removed with the idea that we had a low form of pus infection or mixed infection to deal with. The lesson to be learned from such cases is that extragenital chancres of the fingers are seldom typical. An infection on a physician's hand, which is not acute, which produces enlargement of the axillary lymphatics, which persists for more than ten days, which is locally limited, which is accompanied by a slight continued elevation of temperature, is suspicious of syphilis, no matter what the size, shape, or consistency of the sore may be.

In looking into this question I find that trained nurses very rarely acquire syphilis of the fingers. Among 500 nurses observed from 1883-1898, no cases; among physicians it is much more common than is generally believed, Among the several hundred physicians, certainly less than 500 of my acquantance, I know of six cases of extragenital chancre. This is almost entirely preventable and shows the necessity of the observance of the simple prophylactic rules required, and evidently followed out more carefully by nurses than physicians. The primary sore of the finger may be so small and so transient that it is not recognized; the seconday symptoms following may be slight and not interpreted and the case go on to tertiary syphilis untreated. I have seen this in the case of a physician of unusual intelligence, who, in the light of tertiary symptoms, was able to review in this new light his previous four years and could plainly recall the primary sore and the mild secondary symptoms. In the light of this case, I have no doubt but that many cases of syphilis exist in the community unrecognized by the physician and unknown to the patient. Extragenital chancres of the lips are fairly common; usually the infection is carried from a mucous patch on the lip of the infector; sometimes, of course, due to sexual perversion, and sometimes due to an indirect infection from instruments in the hands of dentists or physicians.

I have had one chancre of the tonsil occurring in the case of a physician who had his throat treated by a throat specialist, the infection being carried by the instruments used. A great mass of glands on the side of the neck followed the small unrecognized chancre. Two prominent surgeons diagnosed tuberculosis of the cervical glands and advised removal. Prof. James Nevins Hyde and myself suggested the possibility of syphilis. The doctor patient ridiculed the idea, but decided to await developments. Within a few weeks secondary symptoms occurred; treatment, rapid disappearance of glands, but later, unfortunately, brain syphilis.

An unusual type of extragenital syphilis occurred in a doctor who presented himself with this history. He tripped and fell on an iron rail, cut the skin over the patella; wound slow in healing; examined and probed by a number of doctors; wound almost healed, and then after about twenty days a circular hard ulcer developed at the site of traumatism; hard chancre from infected instruments or fingers.

A physician brought me to see his son-in-law, grandchild and his wife, whom he said had been poisoned by poison ivy. The man had a pustular syphilide, the child inherited syphilis of skin and skeleton, the grandmother a history of having had a sore on the arm on which she usually carried the child. This healed slowly, was accompanied by weakness and deterioration of general health, and she was, when I saw her, suffering from a macular sypilide. The mother of the child had no symptoms and my doctor friend, the grandfather has escaped.

When stationed in Portland, Ore., my position as marine surgeon brought me many patients from the salmon fishermen, some seven thousand were at the mouth of the Columbia River.

These men, like sailors, frequently acquire syphilis. Two of them go in a boat to tend their nets and live together for many weeks and months. Sodomy is common, and as a result chancre, chancroid and gonorrhea of the rectum occur. I have seen several cases of chancre of the rectum among these men, but have never been able to follow out the later history of these cases to determine whether the lesion was the initial lesion of syphilis or chancroid.

The facts to be kept in mind in extragenital chancre are. 1, its atypical character; 2, that it is common, at least that it is not a rare lesion; 3, that it is possible in any individual; 4. that we should wait for secondary symptoms before placing the patient on constitutional treatment.

The second unusual form of syphilis I desire to mention is the unusually severe constitutional symptoms called syphilitic fever. I have seen one case in which I believe it is possible that death resulted from the profound primary syphilitic intoxication before secondary symptoms developed: history of healing hard chancre, bubo, severe pains in limbs, high continued fever, and death at the end of ten days; no post-mortem made. I have diagnosed typhoid several times and later found that I had syphilitic fever to deal with.

I shall pass over the unusual skin lesions of secondary syphilis because I am not qualified to discuss them. I shall simply remark, in passing, that I am impressed with the fact that they may simulate almost any skin lesion, and that I lose confidence in the dermatologist who with great emphasis positively affirms that a certain lesion cannot be syphilis because it lacks this or that characteristic of form, color, consistence, symmetry, etc., because I have seen a number of cases in which these positive statements were made turn out to be syphilis after all.

Syphilitic ulcerations of the skin and mucous membrane are common. As a rule, in the light of the previous history they are readily recognized. There is a large number of cases, however, in which the patient conceals the history, or is ignorant of the history, and in which there is no other sign to guide the physician. These cases form a large group, and they are frequently mistaken for other lesions. As types, I will cite the following cases:

Mrs. P. was sent to me by a dermatologist, to remove a small epithelioma from the nose. I found a small ulcer with hard base, about the size of a bean, which had existed for several years; it would sometimes scab over, but never heal. She was a woman of refinement, fine social position, and with no specific history. I put her on iodid in large doses, and in two weeks the ulcer healed. I have had two other cases on the nose with the same history and result.

Mrs. R. was sent with diagnosis of epithelioma of scalp or possibly lupus; mother of eight children, youngest twelve years; good social position; no specific history. The lesion was of that character in which it was impossible to state the pathology positively. Under iodid of potash the lesion healed in three weeks.

I have seen several cases diagnosed as carcinoma of the tongue heal under iodid. In fact, I believe we should make it a rule, before operating on these small ulcerations of skin and mucous membrane, to give the patient the benefit of the doubt and put him or her on a thorough course of iodids.

We will sometimes make the mistake of confounding some other lesion with syphilis. As an example, I recall a case of a man of 50, with palmar syphilide, history of syphilis, and an ulceration of the finger, the size of a copper cent, of one year's standing. The diagnosis was positively syphilis. A long course of iodids gave no benefit. I removed a section and Prof. L. Hektoen found carcinoma, which we believed began on a syphilitic base.

Syphilitic lesions of nose and palate are common. I refer to them here because I have met with several unusual cases. One was sent me by a rhinologist with: destruction of cartilage and bone; no syphilitic history; course of iodids, 8-grain doses, producing no benefit. On increasing to 70-grain doses, the lesion healed. A second case: positively pronounced by rhinologists as non-specific; no specific history; mercury produced no effect; lesion healed under 300 grains a day. A third case: I removed the greater part of the superior maxillary for a dentist; no specific history; wound became indurated and disease began to invade other jaw. Iodid in 40-grain doses produced a cure.

Cases of suppuration of lymphatic glands, where a specific history is denied, are often due to syphilis. As an example, a business man of 40, with bubo in groin, positively denied venereal disease. The pus was evacuated; sterile; wound healed slowly. I discovered a small ulceration on the nasal septum; put him on iodid; bubo and ulceration of nose healed rapidly. He then confessed to having had syphilis twelve years before.

The subject of large gummata which are mistaken for malignant tumors forms a most interesting chapter of unusual syphilis. Esmarch has written extensively on this point, but the value of his work is not widely known. As types:

CASE I.—A tumor of the breast was diagnosed carcinoma. Amputation of breast was done. A year later a similar tumor appeared in opposite breast; glands in the axilla enlarged; noticed, by accident, a palmar syphilide. Under large doses of iodid the tumor in the breast disappeared. Evidently the first tumor was also specific.

Case II.—A man of 40 was sent by Dr. Frankenthal, with a tumor in the thigh the size of a fist; malignant in appearance; diagnosis probable sarcoma; no specific history; removed section and found granuloma. Under iodid the tumor disappeared. The patient later acknowledged a specifie history.

CASE III.—A man of 43 presented a tumor in the breast; no specific history; diagnosed sarcoma, which was removed; wound healed, but became indurated. Iodid in large doses; induration melted away, and the patient then acknowledged a specific history.

Gummata, mistaken for a variety of lesions, form a mixed class. As examples:

CASE I.—A patient of 30, male, married three years, and two healthy children; no specific history; enlarged testicle; suppuration; ulceration of scrotum; removal of the testicle and infected skin; diagnosis, tuberculosis. The wound healed. Later there were two hard masses in the penis the size of walnuts; surgeon desired to amputate penis. I removed a section of granulation tissue, put the patient on iodid, and the lesion melted away; patient cured, but still denies syphilis.

CASE II.—Medicolegal case. A brakeman, in a railroad accident, received an injury to the shoulder; paralysis of the sternocleidomastoid and trapezius; threatened to sue company; sent to me for examination and report. I found a gumma in the sternocleidomastoid along the course of the spinal accessory nerve. The patient at first denied syphilis. Under iodid the gumma melted away, and with it the lawsuit and paralysis disappeared.

CASE III.—A man of 50; pain over gall-bladder; small mass palpable; diagnosis, gall-bladder lesion or carcinoma of liver. On making an exploratory laparotomy I found what I believed to be a gumma of the liver. The patient is still under treatment.

Case IV.—A patient under murcurial treatment for syphilis, developed pain over the liver; jaundice. The jaundice disappeared under large doses of iodid; probably obstructive jaundice due to gumma.

I will pass over unusual forms of syphilis of the stomach, small intestines, colon, and of which I believe I have seen examples, because of lack of positive evidence.

The so-called syphilitic stricture of the rectum is unusual only to the men who are not familiar with its frequency. Although these so-called syphilitic strictures are usually due to gonorrhea, true syphilitic strictures occur; I have one case of syphilis of the kidney to report:

A man at St. Elizabeth's hospital, seen for Dr. Fütterer, presented a large kidney mass; explored; greatly thickened edematous capsule, both fibrous and fatty; nothing in the pelvis; two masses in the capsule which Dr. Fütterer regarded as tubercular. The patient recovered from operation shortly after; admitted syphilitic history. He was put on iodid, and the kidney mass melted away; patient now well. I believe it was a syphilitic lesion of the kidney.

In order to be brief, I shall omit in my discussion any cases of unusual syphilis of the heart and blood-vessels, but shall hope that cases of this class will be presented by our internalists.

The last class of cases which I desire to present comprises cases of unusual syphilis of bone and joints. The relation of syphilis to fractures can be well shown by three cases.

Case 1.—A man of 24, under treatment for syphilis, has a gumma on the right humerus. On boarding a street-car he feels something give way in the arm and the arm falls helpless to his side. Examination reveals no new point of motion; some swelling; no deformity; no crepitus. The X-ray shows complete fracture of the humerus without displacement. Spontaneous fracture or fracture from muscular contraction is one of the results of syphilis.

Case 2.—A man of 25 had fracture of both bones of the leg; delayed union; at the end of three months he confided to his surgeon that shortly before being injured he had secondary syphilis. At once placed on constitutional mixed treatment, union rapidly followed.

Case 3.—Inherited syphilis of both bones of leg; bent at right angle. I believe the case to be one of late rickets; operated; straightened limb; no union. The patient returned after several months, I operated again, and placed him on iodid and mercury. Rapid bony union followed.

Case 4.—An unusual case of double mastoid disease, oper ated on at interval of six weeks between, was slow in healing. patient admitted syphilis; iodids given; rapid recovery.

I have seen cases of joint syphilis mistaken for tuberculosis and gonorrheal rheumatism. I shall cite but one instructive case:

A man of 23, a large, strong, robust fellow, with carious disease of the left wrist-joint, was treated by iodoform injections and resection; not cured. I believed the case to be tubercular and amputated. Later a large gumma of the arm on same side, and a deep ulceration on the skin of the face appeared. He had previously denied syphilis, but now admitted it. Under iodid treatment, the lesions disappeared. I have now no doubt but that the wrist lesion was syphilitic.

Before closing this rapid and incomplete sketch, which is meant simply as an introduction to a general discussion by the members of the Association, let me call the attention of the Association to a fact which has impressed me more and more as I accumulate experience in the use of iodid of potash in syphilis, and it is this: The fact that a granuloma melts away under iodid does not prove absolutely that it is syphilitic. Why? Because we now know that at least one other form of granulation tissue is often similarly absorbed—i.e., actinomycosis, and I had a few months ago under observation a case of blastomycetic dermatitis which undoubtedly disappeared in part under iodid.

OBITUARIES.

DR. ROBERT LAUGHLIN REA.

Dr. Robert Laughlin Rea, died at his home in Chicago, July 11. He was born in Virginia in 1827, and received his degree from the Medical College of Ohio in 1855. He was soon after elected demonstrator of anatomy in that institution, and continued in that relationship until 1857, when he returned to Oxford, Ohio, for practice, and there delivered courses of lectures on anatomy and physiology in the Western Female Seminary. He came to Chicago in 1859, and was appointed professor of anatomy in Rush Medical College, was later connected with the Chicago Medical College, and in 1882 accepted the chair of surgery in the College of Physicians and Surgeons, Chicago, but retired four years later.

PRESENTATION ADDRESS.*

BY JOHN EDWARD STANTON, M.D.

Chicago.

It would be impossible for me to describe the feelings which the exercises of to-day arouse in the hearts of the members of this class. What does graduation mean to us? That the time of study is now a thing of the past; that all difficulties are overcome, and that fame is already waiting to clasp our hands? Not at all! It means that the lessons learned within these walls merely pave the way for the greater work which lies before us, for when we leave this school we will begin a course of study from which there will be no graduation, and which will never end.

To us as students it means that we can no longer depend on those who have always extended to us a helping hand to guide us through a critical period, and that the wise counsel that has been freely given to us by those who have instructed us in the science which has for its object the relief of suffering and the prolongation of life, can be relied on no longer. To-day we stand as a class, to-morrow we enter on our work as individuals, face to face with the problems which may confront us.

By our teachers it has been revealed to us that the field of medicine is a broad one, one in which there are ever arising new problems and new ideas; ideas which must stand the closest scrutiny and the severest criticism before they are accepted as truths. The theory of to-day may be the fallacy of to-morrow, and he who wishes to keep at the top must constantly probe deeper into the scientific principles on which this science is constructed. The one underlying principle of all things in medicine is the discovery of the cause. The cause of disease discovered, rational treatment will suggest itself as a natural consequence.

Know the causes: these words comprise the banner under which we have worked for many months, and I am sure that it will continue to be the motto of each of us in the future, as it has been of the class in the past.

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*Delivered on presentation of the class tablet, Class Day, May 22, 1899, Rush Medical College.

But what shall be said of those who have helped us through all the difficulties which have arisen during these years of study; of *those* who have unraveled the most entangled questions; of *those* who have led us to a world of science into which they have traveled far, but on the threshold of which we stand? Mere words of mine could not convey to you how much we owe them, nor to them the depths of our gratitude. These men have spent their lives in the quest of knowledge which has enabled them to minister to the sufferings of their fellow-men. This knowledge they have generously instilled into our minds. Yet this is by no means the sum total of their work, for in addition to fitting us for the noble vocation of alleviating physical agony, they have illustrated to us by their daily lives that if we wish to be truly benefactors to humanity we must not overlook the soul, for there have ever been about these men an atmosphere of purity and high conception of duty, and we can only say in our gratitude that the example shown us in our college days is one that shall have an ennobling influence on our future lives.

The great mystery of life-giving is a gift which the great Teacher of teachers has kept for himself, but could he have given one more akin to his own divinity than the knowledge whereby man might preserve the original grandeur and beauty of the human body, which in itself is the masterpiece of the Creator's handiwork! It was to fit us for this work that these men have labored so hard and so earnestly, and I wish I could tell them how much we appreciate their efforts in our behalf, but I can but extend our heartfelt gratitude, and in token of which I have the honor to present to you, Professor Lyman, as Dean of this College, the tablet bearing our motto, *Cognoscite Causas*, which shall be a souvenir of the class of '99.

The Corpuscle

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PROF. J. CLARENCE WEBSTER, M. D.

It gives us pleasure to present this month, for our frontispiece, a photograph of Prof. J. C. Webster, who, as previously mentioned in the Corpuscle, succeeds our lamented Prof. James H. Etheridge. Prof. Webster is a native of New Brunswick, Can., and received his A. B. from Mt. Allison University College, N. B. In 1883 he began his medical study in the University of Edinburgh, graduating with honors as Bachelor of Medicine and Master of Surgery in 1888. Then, in 1891, he received the degree of M. D., and in 1892 became a Member and the next year a Fellow of the Royal College of Physicians of Edinburgh. During a three month's study in Leipsic, in 1885, Prof. Webster worked with Prof. Sänger, in his Hospital for Diseases of Women, and in the Maternity Hospital; he was later demonstrator of anatomy under Dr. Symington and, after his graduation in 1888, studied midwifery and gynecology, in Berlin, under Profs. Gusseron and Martin. He was later assistant to Dr. Freeland Barbour, lecturer on midwifery and diseases of women in the Edinburgh School of Medicine, and, in 1891, first assistant in the midwifery department of the University of Edinburgh, holding this appointment six years.

The foregoing are but suggestions of the extended training the Doctor has had in his special line of work, and do not by any means cover the field of his labors, for with each of these mentioned, there has been extended clinical, hospital and other training that lack of space forbids mention of. In fact, honors have come to Prof. Webster throughout his medical career, as may be attested by numerous medals and other prizes awarded him. Among these we can only mention that, in 1891, he was awarded the Freeland Barbour Research Fellowship, by the College of Physicians, in recognition of his original investigations during the preceding two years. The next year the College did him the honor of undertaking the cost of publishing much of his work, in two volumes. In 1894 he was awarded the first prize given by the College for the best results of original research of the previous year, and also a grant by the British Medical Association for the purpose of carrying on further research, while 1896 brought him the first prize of the Royal College of Physicians, for an embryologic investigation.

Prof. Webster belongs to many prominent societies. He is corresponding member of the Royal Academy of Medical Science of Palerma, and of the Italian Obstetrical and Gynecological Society; a member of the British Medical Association, the Edinburgh Pathological Club; a Fellow of the Edinburgh Obstetrical Society and of the American Gynecological Society, etc.

Besides being on the staff of collaborators for the *Monats. f Geburtshulfe and Gyn.; British Gyn. Jour.; Montreal Med. Jour., and Obstetrics*, he has a number of books to his credit as an author, and numerous papers.

Our gain in the coming of Prof. Webster to Rush Medical College, is the distinct loss to McGill University, Montreal, where he has been lecturer in gynecology. The *Montreal Medical Journal*, in referring to the departure of Dr. Webster from Montreal, says: "While it is gratifying to know that his ability has led to his appointment, . . . his genial presence and his scholarly attainments have, in a few years, attached him very closely to the profession in this city and his fellow-teachers at McGill." The *Canadian Prac. and Review*, Toronto, in the July number says: "We quite agree with our contemporary in its estimate of Dr. Webster's varied good qualities. We feel that the profession of Canada will sustain a serious loss through his removal to Chicago."

We extend to our new Faculty member a sincere welcome and prophesy for him all success, when he shall return to this country for his work in Rush, for he is now abroad, and, we learn, will bring back much additional equipment for use in the department.

THE STUDENTS' LIBRARY.

Rush alumni have taken great interest in furthering the interests of the new students' library, of which extended mention was made last month. Among others Dr. Jos. W. Edwards, '54, Mendota, Ill., has expressed a willingness to donate volumes; also Drs. D. T. Kyner, Blue Mound, Ill.; John Brimir, Poynette, Wis.; G. H. Hill, Independence, Iowa, superintendent of Iowa Hospital for the Insane; N. E. Oliver, Thornton, Ill.; J. W. Chamberlin, St. Paul; Wm. Tracy, Helena, Mont.; Byron M. Caples, superintendent of Waukesha (Wis.) Springs Sanitarium; E. H. Butterfield, Ottawa, Ill.; G. H. Ryan, '95, Des Moines, Iowa; N. A. Drake, '67 and '68, Kansas City; E. L. H. Barry, Jerseyville, Ill.

The Chicago Department of Health has inaugurated house-to-house instruction in hygiene and sanitary matters. Physicians, largely recent graduates, have volunteered to make a regular canvass of their districts, pointing out defects and advising householders and parents as to the proper care of children, the abatement of nuisances, the methods of sterilizing milk and water, the needs of cleanliness, etc. The object is the prevention, rather than the cure, of disease, and the inspectors are not expected to prescribe for or treat cases unless in emergencies

ITEMS OF INTEREST.

Dr. W. N. Lane, '89, writes from Angola, Ind., where he is well established.

Dr. W. F. C. Witte, '96, Milwaukee, Wis., has been appointed assistant health commissioner.

Rush doings receive favorable comment in the *British Medical Journal* of July 1, p. 55.

Prof. Brower's recent oration before the Am. Med. Ass'n, entitled the "Medical Aspects of Crime," was favored with extended editorial comment in the *British Med. Jour.* of July 8.

Prof. N. Senn has had conferred on him the honorary degree of Doctor of Laws, by Jefferson Medical College, Philadelphia.

Doctors should "drink less, breathe more; eat less, chew more; ride less, walk more; clothe less, bathe more; worry less, work more; waste less, give more; write less, read more; preach less, practice more."—*Chicago Med. Recorder.*

Prof. Frank Billing's address as chairman of the section on Practice in Medicine, of the Am. Med. Ass'n., may be read in the Association *Journal* of July 1.

Dr. Arthur T. Holbrook, '95, who has been practicing in Milwaukee, Wis., since the expiration of his interneship in the Presbyterian Hospital, has been commissioned first lieutenant and assistant surgeon, Wis. National Guard.

In a recent list of licentiates to practice medicine in California appear the following names of Rush graduates: Frank W. Miller, '94, Red Oak, Iowa; Frank R. Weston, '94, Onalaska, Wis.

Dr. Robert C. Robe, '95, Pueblo, Colo., writes that there are four other Rush men in practice there: Dr. P. R. Tombs, '62, who is superintendent of the state asylum for the insane; Dr. G. W. Crawhall, '90; Dr. W. H. Campbell, '97, and Dr. J. J. Paster, '62.

Dr. A. F. Snyder, '84, writes from Escanaba, Mich., where he went from Baraboo, Wis., about a year ago. He is assistant surgeon of that division of the C. & N. W. Ry., while Dr. C. E. Ruth, '71, is surgeon in chief of the Penn. Division.

Dr. C. A. Faber, '97, Milwaukee, Wis., writes that there is but one other member of the class of '97 in that city, i. e., Dr. Geo. H. Fellman, but two of '96—Drs. W. F. C. White and L. J. Daniels, both of whom "hold professorships in the Milwaukee Medical College."

Dr. Myrwood T. Dixon, '87, Columbus, Ohio, writes: "Every alumnus of Rush is proud of his Alma Mater, but mingled with pleasant memories of years ago is deep regret for those who have passed away. I like the CORPUSCLE. It is the tie that binds us to an agreeable past and keeps us in touch with the glorious present."

Dr. T. C. Murphy, '68, Manito, Ill., recently wrote: "The news of the death of Dr. Hamilton was hard on me, but the death of James H. Etheridge, caused me to break clear down. I loved Dr. Etheridge beyond a brother. He was a warm friend of mine. My attendance at Rush now must seem to me like going to a funeral: Brainard, Freer, Blaney, Gunn, Parkes, Hamilton and Etheridge—kind, genial "Jimmy"—all of my day."

By recent action in Tennessee, the law relative to medical practice in that state has been so changed as to give graduates of reputable medical colleges in the state the right of registering as qualified practitioners, while those presenting diplomas from schools outside of the state are required to take an examination.

Prof. D. R. Brower says (*Med Record*, May 6), that in dietetic treatment of gout, the great principles to be considered are: 1. Abstemiousness in all things; 2, non-restriction of the animal albuminates which are so essential to the nutrition of the body and so comparatively easy of digestion; 3, withdrawing from the dietary of the saccharine, starchy and fatty foods, which check metabolism and diminish oxidation.

Dr. D. T. Kyner, Blue Mound, Ill., credits himself as one of that "ancient ilk," who practiced at a time when a doctor received $5 for an obstetric case—"when letter postage was 25 cents—when farmers reaped *their grain with a sickle, etc.*" These reminiscences are interesting bits of former days. Write again, Doctor!

RUSH IN MEDICAL LITERATURE.

ALKALINITY OF BLOOD IN ITS PHYSIOLOGIC AND PATHOLOGIC RELATIONS.

Ass't. Prof. J. H. Salisbury, in *Medicine*, for July, presents a lengthy paper on this subject, simply aiming "to put before its readers the results so far achieved by investigators, and to draw some practical conclusions from them." He points out that: "Although physicians occasionally speak of the blood becoming acid, it is the universal result of experiment that the blood reacts continuously alkaline to litmus in health, and in all cases of diseases investigated except cholera and diabetic coma. It must be remembered, however, that while the reaction to litmus is alkaline, it contains salts which are of acid constitution * * * so that its chemical effects may be that of an acid." His conclusions are: The reaction of human blood is constantly alkaline. The alkaline reaction is due partly to inorganic alkalies and partly to substances of organic nature which are probably derived from the proteid food. The regulation of the reaction of the blood is due to the action of the kidneys and probably the liver. The alkaline reaction of the blood is reduced in various diseases—uremia, diabetes. In infections it is lowered in proportion to the virulence of the infection, but increases with the recovery of the organism, and in immune animals is above the normal. In the treatment of disease, causes of acid reaction should be avoided, particularly in infections. Thus the action of the skin and kidneys should be favored and the production of acids by fermentation in the intestinal canal should be prevented. The administration of alkalies in moderation is useful, but cannot be expected to raise the alkalinity of the blood to a high degree. This is due to the fact that inorganic alkalies are either temporarily stored in the liver or rapidly excreted by the kidneys. The increase of alkalinity in cases of recovery from infections is probably not the cause of recovery, but is due to the production in the blood of a curative substance which is alkaline in reaction. The substance is a nitrogenous organic compound, and is derived from the proteids. A meat diet, therefore, would seem especially suited for patients suffering from infection. It may be the case that the nitrogenous constituents of beef tea, although not proteids, are capable of furnishing the material from which such an alkaline protective agent can be produced.

WHITEWASH A PREVENTION OF FECUNDITY.

A clergyman was walking through the outskirts of his parish one evening when he saw one of his parishioners very busy whitewashing his cottage. The parson, pleased at these somewhat novel signs of cleanliness, called out: "Well, Jones, I see you're making your house nice and smart." With a mysterious air, Jones, who had recently taken the cottage, descended from the ladder and slowly walked to the hedge which separated the garden from the road. "That's not 'xactly the reason why I'm a doing of this 'ere job," he whispered, "but the last two couples as lived in this 'ere cottage 'ad twins; so I says to my missus, I'll take an' whitewash the place, so as there mayn't be no infection. Ye see, sir, as 'ow we got ten of 'em already." Whether the whitewashing was effectual or not I have not been able to ascertain; "The Humor of an English Parish." *Littell's Living Age.*

SCIENCE OF MEDICINE AND ITS RELATIONS TO THE PUBLIC.

Prof. Arthur Dean Bevan's address as retiring president of the Chicago Medical Society was on this subject. A lengthy abstract of the address appeared in the *Jour. Am. Med. Ass'n.*, July 1, p. 39, from which we learn that, among other things, he discussed the great duty which the science of medicine owes to the public, under four heads: 1. By developing and teaching the science and practice of medicine along purely scientific lines. 2. By demanding a high standard of knowledge and efficiency of men desiring to practice medicine. 3. By educating the public in the great truths of medical science. 4. By obtaining national, state and municipal recognition of the great medical truths which can be incorporated into laws for the good of the community, He elaborated on each of these and said:

"Modern medicine demands a scientific training. The modern medical school must drill its students in the sciences of anatomy, physiology, pathology, chemistry, and pharmacology in well-equipped laboratories. These laboratories must be not only teaching mediums, but workshops for the discovery of new truths. After this preliminary work the student will study medicine, surgery, obstetrics and the specialties in well-equipped hospitals and dispensaries, and these hospitals and dispensaries must be not only places where patients are treated and students study, but they must be true laboratories where the problems of the human body in health and disease will be worked out, and from these laboratories must come the discoveries of new truths."

VARIATIONS IN MANIFESTATIONS OF MALARIA.

Dr. Chas. Dewey Center, '94, Quincy, Ill., publishes his paper, read before the Ill. State Med. Soc., on this topic, in the *Phila. Med. Jour.*, July 15. He says: "A classification of the causes for the varied forms of malarial manifestations give us (1) a variation arising from difference in the causative parasites; (2) variation caused by individual differences, or personality; (3) variation caused by locality and time; (4) variation as shown by deviation from, or failure in use of, the recognized specific, quinin." He then considers the characteristics of the parasites, their chief differences being, subjectively, "the number of spores, difference in activity of the parasite, difference in action on the blood-corpuscles, difference in color, difference in the power to convert hemoglobin into melanin, difference in sites of selection and difference in outline so far as the crescent or estivo-autumnal form is concerned." Objectively the differences are in the periods of time for chill and temperature, the location of greatest discomfort, the time of year, and the surrendering of the disease to, or its resisting quinin,"

FOURTH COURSE OF LANE LECTURES DELIVERED BY DR. N. SENN.

On Monday, July 3, Dr. Nicholas Senn completed a course of ten lectures on "Emergency and Military Surgery," given in the Lane course of lectures at Cooper Medical College. He treated this subject under the following heads: Traumatic Shock; Prophylactic Hemostasis; Treatment of Hemorrhage, two lectures; Wounds and Wound Infections, two lectures; Compound Fractures, two lectures; Clinical Demonstration in Operating room; Gunshot Wounds. In these lectures Dr. Senn has presented the subject of emergency and military surgery in a thoroughly original and masterly manner. In fact we are justified in saying that never before has this subject been so exhaustively treated.

In the summer of 1897 we had the pleasure of accompanying Dr. Senn through the military hospitals of Athens and Constantinople, during the Greco-Turkish War. Here we saw hundreds of wounded soldiers of both armies. At this time Dr. Senn took voluminous notes of the cases shown us by the surgeons in charge. Some of the results of his observations were at the time given to the profession in letters from Athens and Constantinople to the *Journal of the American Medical Association.* In the late war with Spain, Dr. Senn took, as we all know, a most active part. Besides doing a vast amount of operative work, he gave a great deal of study to gunshot wounds, etc. In these ten lectures we have a summary of his personal observations and work both at home and abroad. These lectures are the framework of a volume soon to be published on the subject of "Emergency Surgery." * * *

Dr. Senn has expressed himself as more than pleased with his visit to San Francisco. The open hearted cordiality which he has met on all sides has given him great pleasure. He is delighted with the city and the climate. He says that he only wishes that he could bring his college here where under exhilaration of our glorious climate he feels sure he could accomplish even better work.

From here Dr. Senn goes to Honolulu for a few weeks vacation before he returns to his work in chicago. We trust that we may soon have the pleasure of again welcoming him to California. We want him to come when he can have an opportunity to go hunting. The doctor is a fine sportsman and is exceedingly anxious to get a shot at some of our California game. He has in his house in Chicago trophies of his skill as a hunter, from every country in Europe. He also possesses a collection of guns which has not its equal in any other private collection in this country.—Editorial. *Pacific Med. Jour.*, San Francisco, July.

CAPUT OBSTIPUM MUSCULARE.

Dr. M. L. Harris, '82, Chicago, in *Medicine* for July considers this subject—torticollis. He reviews the etiologic theories and concludes: 1. It is a postnatal chronic inflammatory condition due to infection, principally affecting the sternocleidomastoid muscle, and accompanied by contraction. 2. The affection is principally for a variable though considerable time progressive. 3. The best treatment is complete extirpation of the contracted muscle and the involved surrounding tissues.

EMPYEMA OF ANTRUM.

Dr. H. G. Ohls, '87, Chicago, has his paper read before the Chicago Laryng. and Climatolog. Soc. in May, on this subject, in the *Jour. Am. Med. Ass'n* for July 15. He details the anatomy of the antrum, considers the age, sex and etiology. In treatment of acute catarrhal sinusitis with patent ostium he recommends Prof. Ingals' formula:

Sodii bicarb	gr. i	065
Sodii biborate	gr. i	065
Mag. carb. levis	gr. iii	20
Sacch. lact. q. s. ad	gr. c	6 50
Cocain mur	gr. iv	26

M. ft. pulv.

EVERSION OF SAC OF CYSTONEPHROSIS, AS AID IN OPERATING ON RENAL END OF URETER AND ON PARTITION WALLS BETWEEN DILATED CALICES.

Prof. Christian Fenger describes a new method of systematic search for the ureteral opening on the inside of a cystonephrotic sac, in *Am. Jour. of the Med. Sci.* for July. "This eversion of the sac, combined with methodic consecutive division of the partition walls one after another, enables us gradually to lay bare and turn out for ocular inspection the whole inner wall of the sac," he says, and repeats a case in detail.

ESTIMATION OF HEMOGLOBIN: COMPARISON OF VARIOUS METHODS.

Ass't Prof. B. M. Linnell presented a paper on this subject before the recent meeting of the Am. Med. Ass'n. It may be read in full in the *Jour. Am. Med. Ass'n* of July 1. The Doctor gives results of a test of 425 cases with students examining Fleischel's hemometer. The variations between the various readings were about 20 per cent. The paper considers the color tests; Fleischel's; Gowers; the percentage of error; variation between different eyes; between the same eyes at different times and under different circumstances of the recognition of colors; also a method for approximate estimation by known dilutions of examiner's blood; the specific gravity method (Hammerschlag's), the most accurate; some modifications in the technic.

The Corpuscle.

Rush Medical College, Chicago, Ill.

In Affiliation with the University of Chicago.

VOL. IX. SEPTEMBER, 1899. No. 3

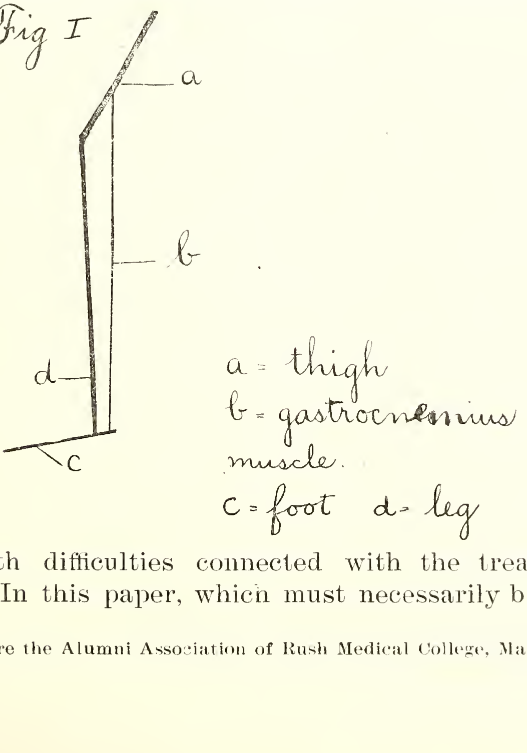
IMPORTANT LITTLE THINGS IN THE TREATMENT OF TWO MOST TROUBLESOME FRACTURES.*

BY A. J. OCHSNER, M. D.

Surgeon in Chief, Augustana Hospital, Chicago.

This subject has suggested itself to me many times, because every practitioner, unless his practice is limited to some of the minor specialties absolutely, is certain to come in contact with difficulties connected with the treatment of fractures. In this paper, which must necessarily be short, I

Fig I



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*Presented before the Alumni Association of Rush Medical College, May 24, 1899.

will speak of a few little things which I have found to be of enormous importance and which, although not new, are still almost never considered in the treatment of the fractures which I shall discuss.

The most common unfavorable condition following fractures, which we meet, is the ankle-joint in Potts' fracture, which frequently persists for weeks or months or even years. The text-books advise massage, forcible passive motion, the application of hot and cold sprays, and vigorous use of the extremity. An examination of these cases invariably shows that the foot is in the equinus position, which results from the position in which the foot is fixed when the fracture is first treated. It does not matter whether the old-fashioned fracture-box or splints are used, or whether a plaster-of-Paris cast is applied. The foot is practically always fixed at an obtuse angle with the leg, because the dressing is usually applied with the knee in the extended position, and this necessarily places the gastrocnemius muscle in a condition of tension, as shown in Figure IV a.

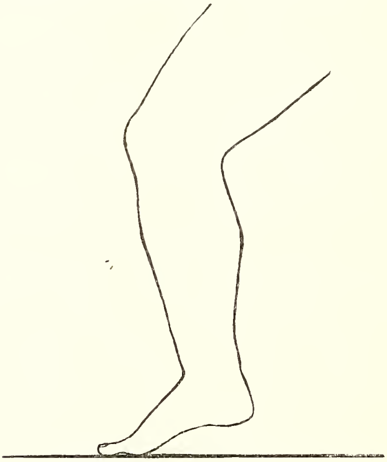


Fig. I

A glance at the diagram in Figure I will show why it is almost impossible to walk on this foot, and why an attempt at walking is so extremely painful. Instead of having the foot act as a movable lever, with its bearing on the astragalus and the articular surface of the lower end of the tibia acting as a fulcrum, we have an almost immovable, obtuse triangle with all the ligaments at the angle under a condition of tension with every step taken by the patient. Moreover, with every step taken the body must be raised sufficiently high to make

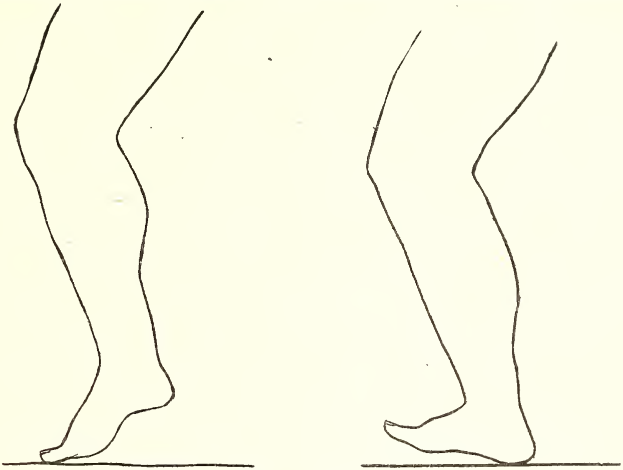
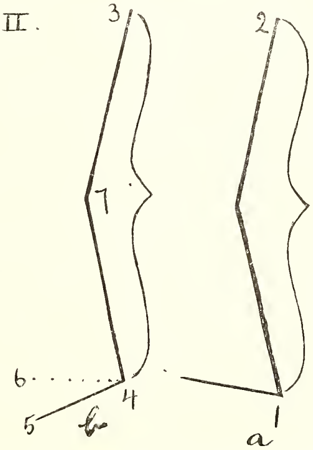


Fig. II

up for the space lost on account of the fixation as shown in Figure II. In this figure the distance 1 to 2 represents the

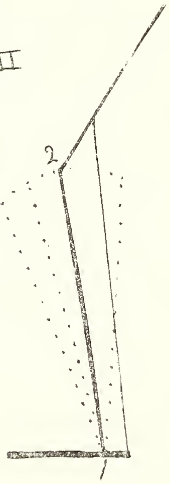
Fig. II.



height to which the body has to be raised normally, and this is equal to the distance 3 to 4, but with the foot in the equinus position the body must be raised the additional distance from 5 to 6, as shown in the diagramatic representation in Figure

II b. It is not difficult to observe the difference in the mechanism of walking by simply following the line 1 to 2, Figure III, which represents the leg diagramatically with the foot in the normal position, as the leg bends forward carrying the weight of the body while the opposite extremity advances in making a step, as compared to the angle 5–4–7 (Figure II b), which must move as a whole when the foot is in the equinus position. The difficulty can be easily overcome by fixing the foot at a little less than a right-angle with the leg when the fracture is first treated. As a matter of fact, in observing hundreds of cases under treatment in many hospitals in this country and in private practice, I have almost never seen one

Fig. III



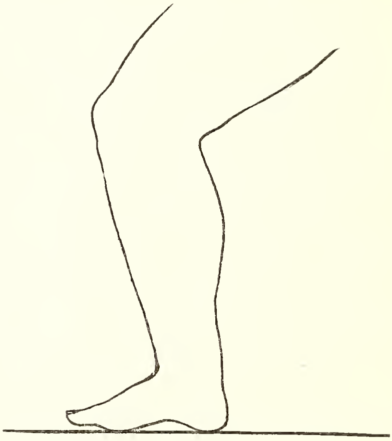


Fig. III

in which this condition was attained, because the casts are usually applied with the knee extended, which places the upper and lower attachments of the very powerful gastrocnemius muscle at the greatest possible distance apart, as shown in Figure IV a. In order to properly apply a cast in these cases, then, the knee should be in a flexed position as shown in Figure IV b, which will at once permit the foot to be placed at less than a right angle with the leg. It is necessary to keep this angle a little less than a right angle throughout the healing of the fracture. This can be accomplished very readily by means of plaster-of-Paris, but the foot must be held in the correct position until the plaster has become perfectly hard, then the knee may be partly or wholly straightened without changing the position of the ankle or interfering with the result.

If, however, the fracture has healed and the ankle has remained painful for a shorter or longer period of time, this can be overcome by anesthetizing the patient, flexing the knee, forcibly flexing the ankle to a little less than a right angle, applying a strong plaster-of-Paris cast preferably over two stockings drawn over each other, and permitting the patient to walk, wearing this cast for about six weeks. I have employed this method in a very large number of cases, many of them of long standing, and so far always with a perfect result.

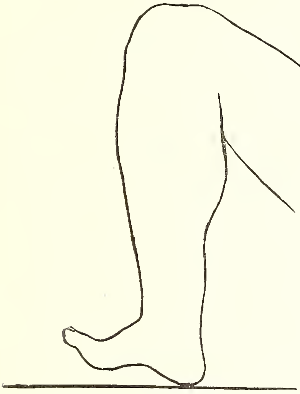


Fig. IV b

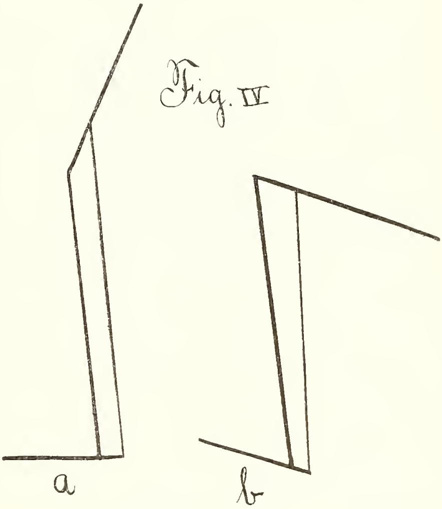
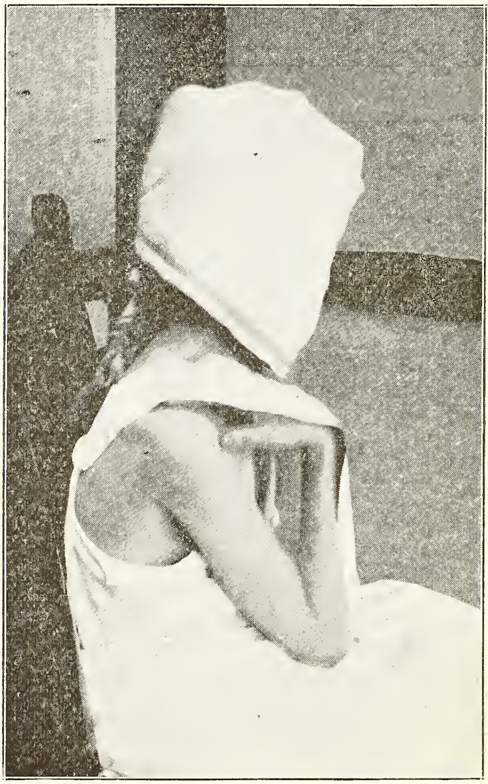


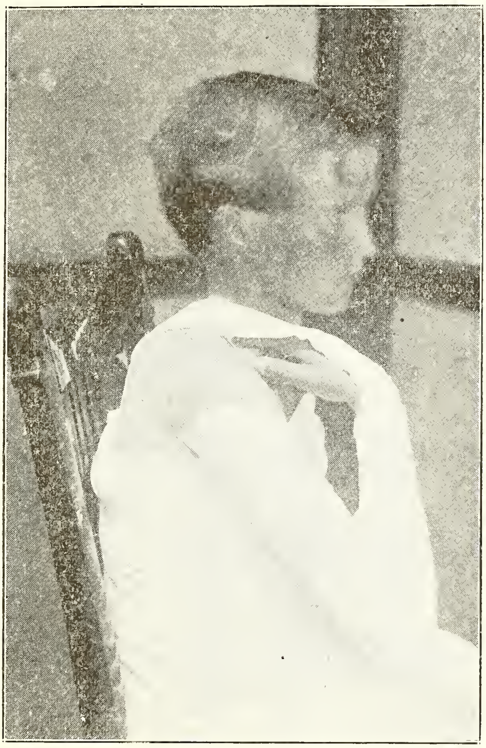
Fig. IV

There are then three little things of importance that I wish to emphasize in connection with the treatment of this most troublesome fracture: 1. Whatever other precautions may be taken in the treatment of this fracture, to obtain a good result one should always place the foot at a little less than a right-angle. 2. In case of a painful joint following Potts' fracture, the foot should be fixed for a period of about six weeks at a little less than a right-angle, the patient being permitted to walk without the use of a crutch. 3. This can easily be accomplished by applying the plaster-of-Paris cast with the knee in a flexed position. If these little things are observed, fractured ankles are not painful after the fracture has healed, and those which are painful after other methods of treatment will be free from pain in a few weeks, notwithstanding the fact that they may have resisted the ordinary forms of treatment for weeks, or months or even years.

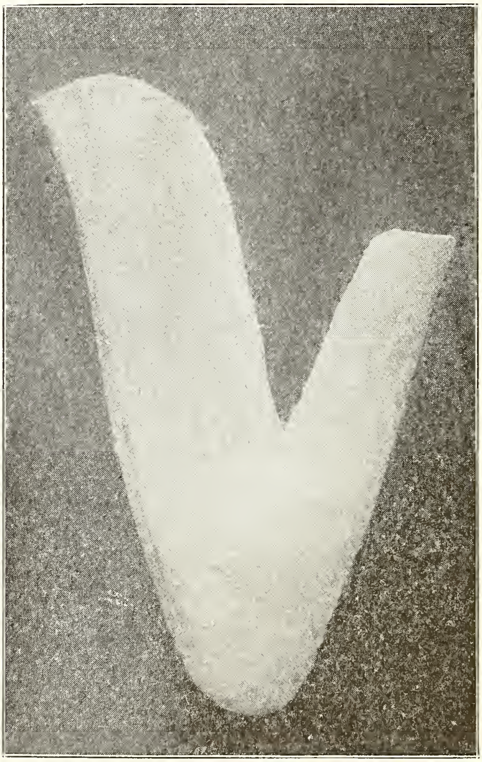
The next most common difficulty one encounters in the treatment of fractures is a partial anchylosis of the elbow-joint in children who have suffered from a fracture of one of the condyles of the humerus into the elbow-joint. It does not matter what method of treatment has been employed, the little patient will frequently have a partial anchylosis of the joint. If an angular splint has been employed the parents of the child will not cease lamenting over the crooked arm. Passive motion may be practiced by the physician, and the



parents may be advised to make use of this at home, but the child will resist and whatever is accomplished is obtained under very unpleasant and unfavorable circumstances. The child may be advised to carry weights, but the object of this is so apparent that the progress is again hampered. About eleven years ago, while treating the most disagreeable case of this kind I ever encountered, because of the bad disposition of a spoiled only child and the unreasonableness of its parents, who had made life a burden for several of my professional friends, who had previously attempted to overcome this deformity, it occurred to me that the child, naturally very active, might be willing to play with a wheelbarrow, a performance which cannot be accomplished with one hand. A good-sized wheelbarrow was procured and in six weeks an ideal result, after several skilful and conscientious physicians



had failed to accomplish the same end in as many months. I have employed the method with equal success in many similar cases since then. There is scarcely a child who is not willing to play with a wheelbarrow, at least I have not as yet encountered one, and the shoving motion seems to be precisely the proper exercise. On the other hand, if there is a limitation of motion in the opposite direction, making a proper degree of flexion impossible, so that the child cannot reach its mouth, or button the shirt collar, or comb the hair, a condition which is much more unfortunate than the simple inability to extend the arm fully, which amounts to very little aside from the esthetic point of view, it is often impossible to obtain a perfect result by the very painful practice of passive motion and massage, and if the patient is anesthetized and the arm placed in a plaster-of-Paris cast, the latter rarely holds the forearm at less than a right-angle with the arm, because



the tendency of the arm is to straighten, and while the plaster is hardening the angle usually increases constantly. In order to overcome this it is well to flex the arm on the forearm at an angle of about 50 degrees, so that the tips of the fingers will touch the acromion process, then place a piece of rubber adhesive plaster about two feet in length and two inches wide over the dorsal surface of the hand and forearm, and then carry it backwards directly over the acromion process and back over the posterior surface of the shoulder. As shown in Figure V, this will hold the arm exactly in the desired position. Now a plaster-of-Paris cast is applied over the outer surface of the extremity, making a kind of trough splint, as shown in Figure VI. After this has hardened perfectly, the rubber adhesive plaster is cut and the splint alone will support the arm. After two or three weeks the cast is removed during the daytime and replaced at night with the most excellent results.

There are then two little things worth remembering in the treatment of troublesome cases of elbow fractures in children: 1. Let the child attain a spontaneous straightening of the arm by using a wheelbarrow. 2. Fix the position of the forearm by means of rubber adhesive plaster until the plaster-of-Paris has become thoroughly hardened in cases in which there is an undue limitation of motion in the direction of flexion.

There are many equally important little things in connection with the treatment of many of the other fractures, but their discussion would require much more time than I can reasonably claim.

710 Sedgwick St.

ALUMNI AND COLLEGE ITEMS.

Dr. F. J. S. Conlan, '99, is in practice in Nevada City, Cal.

Dr. O. A. Kellogg, '99, has located at Storm Lake, Iowa.

About 100 students attended Rush during the summer quarter.

Dr. Semun R. Hewitt, '67, has been heard from in Charles City, Iowa.

Prof. N. Senn is given a full-page half-tone in the *Doctor's Factotum* of September.

Dr. R. A. Harris, '99, will be glad to greet any old friends at Redlands, Cal.

We are indebted to the *Iowa Med. Jour.*, September, for several of our this month's news items.

Dr. L. L. Bond, '70, is, we learn, to change his location from Westside, Iowa, to Denison, Iowa.

Dr. R. L. Whitley, '98, Osage, Iowa, has been experiencing a siege of rheumatism, recently.

Dr. Frank E. Sampson, '91, Creston, Iowa, is vice-president of the Association of Iowa Physicians.

Prof. D. R. Brower delivered an address on the Medical Aspect of Crime, recently, before the Buffalo (N. Y.) Academy of Medicine.

Dr. Jno. A. Robison, '80, will deliver the presidential address before the Chicago Society of Internal Medicine, September 28.

Dr. Wilfred K. Keith, '94, Fontanelle, Iowa, presented a paper on "The Cancer Quack," at the recent session of the Southwestern Iowa Medical Association.

Dr. Theo. P. Stanton, '79, Chariton, Iowa, delivered the presidential address before the Southwestern Iowa Medical Association, August 17, at Chariton.

Dr. W. E. Whitney, '91, Eldora, Iowa, has been taking advantage of the opportunities for post-graduate study down east, the past few weeks.

Ass't Prof. H. N. Moyer, is one of the Committe, on Publication of the new *Ill. Med. Jour.*, the new journal established for publication of the transactions of the Illinois State Medical Society.

Prof. N. Senn discusses "First Aid Dressings in Military Surgery," at the meeting of the Association of Military Surgeons of the United States, in Kansas City, September 27 and 28.

Drs. Perkey and Irwin, '99, enter on their interneships in the Presbyterian Hospital, October 1, on which date Dr. Malloy completes his. The term is now twenty instead of eighteen months for each of the ten intern.

Prof. J. C. Webster has returned from Europe, preparatory to assuming the duties laid down by our lamented Prof. J. H. Ethridge.

Prof. H. B. Stehman is still recuperating on his farm, but expects to be able to return to the city soon.

Prof. J. C. Webster recently began his clinics in Rush, and at once won the admiration of all.

N. P. Colwell, '00, spent a part of the summer in Grand Island, Neb.

Dr. W. T. Belfield, the well-known genito-urinary surgeon of Rush Medical College, has been transferred from the department of bacteriology to the department of surgery in Rush Medical College, with the rank of associate professor. Dr. Belfield was the first to show the New York Pathological Society the method of staining and demonstrating the bacillus of tuberculosis in sputum. He gave the same year the Cartwright lectures in New York upon the subject of bacteriology, "Relations of Micro-Organisms to Disease," and shortly afterward, Novembər, 1884, wrote the well-known treatise on "Diseases of the Urinary and Male Sexual Organs," published by William Wood & Co. He also wrote the article on genito-urinary diseases for Park's Surgery, and has given the annual course in Rush on the same subject for several years, occupying Dr. Senn's chair. He is the leading genito-urinary consultant of the Northwest.—*Indiana Med. Jour.*, August.

The Corpuscle

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THE STUDY OF MEDICINE.

But a short time and another session at Rush will begin, and with it another class of incoming men will be added to the student ranks. The indications point to a very large registration of new students for the winter sessions, and to these we who now can only look back on our freshman days as past, extend a hearty welcome. "In the profession of medicine a man earns social judgment more than in other occupations, by his individuality and personal behavior, so that it behooves them in the career ahead of them to walk with singular circumspection, "says the *Lancet*, and: "By universal consent the exercise of medicine has been adjudged a noble vocation, affording a field worthy of the most aspiring intellect and in dignity second only to the cure of souls." Again, the profession is full, most of them are, but there is still "room at the top," and the medical man of the present day and the near future must not only be a highly educated and sympathetic man, but he also must resolve to live with prudence and circumspection that he may prove to society that he is worthy of its regard. His favorite virtue must be altruism, and with all his power he must strive to commit meritorious suicide by destroying the diseases whereby he lives. It will be necessary for him to maintain a strict control over not only his deeds but his thoughts- As Marcus Aurelius said: "Such as are the habitual thoughts, such also will be the character of thy mind; for the soul is dyed by the thoughts." Our new students must remember that they have chosen a career that always means hard work and too often scanty pay, while they should know that the words of unstinted praise with which our occupation is generally described in public do not accurately foreshadow the public treatment of the profession.

Returning students will find many changes and improvements about the college buildings. The most extensive are in connection with the dispensary, where patients now "pass the turnstile." There is also an office of the Dean, and fresh paint everywhere, while the "haunt" for the basement's northwest corner has been relegated to the past.

RUSH IN MEDICAL LITERATURE.

CRIMINAL MORPHOMANIA AND CHRONIC MORPHINISM.

Prof. D. R. Brower emphasizes (*Jour. Am. Med. Assn.*, Sept. 2, p. 592), treating these cases in general hospitals. All he desires is a good nurse, and he finds that the patients do not need so much personal attention if this requirement is fulfilled. He says: "I have for years been satisfied of the great advantage of the gradual and systematic withdrawal, and at the hospital we have this very simple proceeding. A certain solution is prepared, each teaspoonful of which represents at the beginning what is the ordinary dose of the patient—i. e. the least dose that will suffice to keep his nervous system in fair condition—and then for every teaspoonful of the morphin solution that is taken out the nurse is instructed to put a teaspoonful of water in, and in this way a very gradual withdrawal takes place. I almost invariably practice putting these patients to bed and giving daily massage and faradic electricity, and I think the great perturbations that occur in the nervous system when they get down to a certain point are vastly diminished by the prolonged continuous rest and by the use of the massage and the electricity," recognizing the great advantage of strychnia, and the other remedies which are tonics to the nervous system and circulation.

LEPROSY, INSANITY, ETC. IN THE HAWAIIAN ISLANDS.

Prof. D. R. Brower has a letter treating of his recent trip to the Hawaiian Islands, with Prof. N. Senn, in the *Jour. A. M. A.* for September 2. He touches on the Lane lectures, given by Prof. Senn in San Fransisco just previous to their trip, and much of general interest concerning the islands. Of the leprosy there, he says:

"This disease was introduced from China in 1853, and has spread with frightful rapidity among the natives; somewhat among the other races, but to a very trifling extent among the Anglo-Saxons. The want of resistance to this bacillus, among the Hawaiians, may be due to their almost universal infection by syphilis. The government began the work of segregating them about thirty years ago, selecting for that place a tongue of land on the Island of Molokai, ten miles long and one mile in breadth, bounded by the ocean on one side and a perpendicular precipice 2000 to 3000 feet high on the land side. The soil is fertile, water abundant and pure, and no better place could be found in the country for a leper asylum. The lepers are the wards of the government, and are generously cared for. Numerous cottages have been built for their use and no expense has been spared in having them organize comfortable homes of their own, the property reverting to the government at their death. Every inducement is offered, even to money prizes, to have them cultivate trees, flowers, vegetables, and excellent pasturage is furnished for horses and cows. They are furnished rations, clothing, bedding and, indeed, every thing necessary for their comfort—all this at a cost to the islands of $100,000 annually. There are now about 1,200 lepers at the settlement, only six of them whites. The total population of the islands is 109,000, so that the cost is about $1 for every inhabitant, the total native population is about 31,000, hence deducting about 200 from the population of the settlement, for those who are not natives, leaves a proportion of 1 to about every 31 of those that are segregated, and they have not been ferreted out. This must be by all odds the largest proportion of leprosy to total population of any nation. There are on the settlement two homes provided by philanthropic individuals, one for orphan girls and helpless women, the other for orphan boys and helpless men; they are in charge of Roman Catholic sisters and lay brothers, who are doing admirably a most self-sacrificing work. It is interesting to note that although this work has been going on for about fifteen years, none of these good people have become infected. One government physician, Dr. Richard Oliver, lives in the settlement, and fills this lonely post with skill and fidelity. He has been there about eight years, and has also escaped infection. The only precaution these faithful workers seem to take is careful cleanliness, especially of the hands. The care of the lepers is directly under the Board of Health, the physicians of which are Drs. F. R. Day, C. B. Wood, N. B. Emerson, R. P. Myers, and H. W. Howard; assisting them are the various government physicians of the island, of whom there are from three to six on each island. These government physicians, the sheriffs and police find the suspected cases and send them for study and examination to the receiving station, about four miles from Honolulu; here the above medical members of the Board of Health meet and diagnose each case. The examination is very thorough and includes not only the clinical history and the physical examination, but in all doubtful cases bacteriologic study as well. If the case is determined to be a leper, he goes to the settlement as soon as possible; if there is doubt he is called a 'suspect' and either remains at the station for further study or is permitted his liberty, but required to report to the government physician at least once a month, when he is before the board again if necessary. I had the privilege of being present at one of these examinations, and can testify to the care and scientific skill displayed. I was surprised to find that several of the cases had been lepers for two or three years, due to the fact that as soon as a native suspects that he has the disease he hides himself, and his family and friends, having no fear of the disease, aid without hesitation. Leprosy is slowly diminishing. The rate would be more rapid if all cases could be segregated earlier. The average duration of life of the tubercular form is about seven years, of the neurotic form about twenty.

"A free discussion of the subject with these several physicians, and my own observations, lead up to the following: The period of incubation is uncertain, probably not less than four years Heredity diminishes resistance, but alone cannot produce the disease. The disease is the result of inoculation. There is a home for the girls of leprous parents at Honolulu, that has been in operation for fifteen years; twenty-five have been under observation for this period and no case has developed and, indeed, in no inmate of shorter duration. The youngest child who has become leprous was 4 years old. Direct evidence in favor of the theory of inoculation are two cases, one, that of a man condemned for murder, who was inoculated in the arm and in due time developed the tubercular form of the disease, in that arm, and died a leper. In this case there has been some contention as to heredity, but I think it well established that while there is and was leprosy in collateral branches, yet there has been none among his direct progenitors. The other is the case of a German, who, with a varicose ulcer, slept in a bed, on several occasions, that had been occupied by a leper with the tuberculous form; after about eight years he developed the disease in that limb and died a leper."

"The palliative treatment found most beneficial is hot baths, tonics, iron, quinin and strychnin, intestinal antiseptics, salol especially, and an abundance of easily digestible and nutritious food. I have no doubt the native's diet, consisting almost entirely of 'poi', a preparation made from the taro, a plant much like arrow-root, and fish, usually raw, has something to do with his want of resistance to the bacillus lepræ. There is much said in Honolulu of the benefits derived from the baths of Kusatsu Hot Springs, Japan. Sulphur is the principal ingredient, in the form of sulphates of iron, aluminium. calcium, magnesium, soda and potash, with a large percentage of free sulphuric and hydrochloric acids. This water, artificially prepared at the settlement, has been found no better than ordinary hot water. The springs are situated in the mountains in a very salubrious climate, which doubtless has much to do with the benefits derived—no cases have been cured.

"Our recent acquisition of territory, and our close commercial relations with China and Japan make the question of leprosy one of increasing importance."

' We visited the Oahu Insane Asylum with Dr. F. H. Humphris, the acting superintendent, and found there 89 males and 23 females; the excess of males is quite surprising. We found every patient out of doors under the shade trees, or on verandas; such is the climate that this is possible every day of the year, artificial heat never being necessary. Of the numbers above given, 35 were Hawaiians, 33 Chinese, 3 American. The number of Chinese on the island almost equals the number of natives. Paresis, paranoia and suicides are never found among the natives, and the types they do present are not very active. The buildings, ground and general management deserve commendation.

"The great questions of criminology must be considered more seriously by the people of the islands as elsewhere, for here, also crime is increasing. I visited, with Dr. Chas. B. Cooper, the Oahu Prison, the penitentiary of the islands. We found there 155 males and 1 female, who were as well taken care of as possible. I have no doubt they will soon erect a new building and arrange for the better employment of these delinquents. From the last report of the Attorney-General of the Republic, there were in two years 19,177 arrests and 13,344 convictions. This is no small proportion for a population of only 109,000. The total number of prisoners in jails was 1,225 during the period of 1896-1897; of these 937 were for misdemeanors, the principal being drunkenness, gambling and possession of opium. The crimes against property and persons number 288, of which the chief were larceny, assault with weapons, and distilling liquor. The number of criminal cases before the Supreme and Circuit Courts has increased in ten years from 165 to 837."

"We left the islands with great reluctance, and will ever be mindful of the generous hospitality that we met on every side, well satisfied that in these gems of the Pacific we have a great acquisition, and one in which most important racial problems are in process of solution, regretting that without any prophetic power one can easily see the passing of the Hawaiian."

INTRACRANIAL TUMORS.

Prof. D. R. Brower, before the Chicago Neurological Society (*Jour. A. M. A., August 5*), reported the case of a man, 55 years of age, who was brought as a well-marked case of Jacksonian epilepsy, and with the classic symptoms of intracranial tumor. The case was operated on by Dr. Senn. He remained here for a short time under treatment by potassium iodid, with very great amelioration of all his symptoms. The paroxysms, which were several a day, had ceased, and his mental condition improved. He went home, continued the treatment for a time, stopped it, and very soon his symptoms returned with great exaggeration, and he was again brought back to the city. Dr. Senn then operated on him. The paroxysms began in the hand; the tumor was supposed to be located in the hand center. No tumor was found by the operation. He gave a history of having some years before had considerable trouble with a suppurating ear, which had existed for a long time. Dr. Senn thought it might possibly be a mastoid abscess, but he found none at the operation. A few days afterward the man died. A post-mortem examination was made, and revealed a subcortical tumor, the size of a walnut, and an abscess in the mastoid cells. Prof. B. has never seen any but temporary benefit from surgical interference in tumors of the brain.

Assoc. Prof. J. B. Herrick, in speaking on the same subject, said: There is one form of tumor which, strictly speaking, might not be called tumor of the brain, that presents a great deal of difficulty in diagnosis, and that is the multiple tumor as it involves the meninges. A close resemblance to tuberculous meningitis may exist in these cases. One case of unusual interest I recall. I showed the case to the class as one of tuberculous meningitis. It was a child with a somewhat vague and indefinite history. There had been complaint of considerable headache and of irritability for several days, then two or three convulsions. The history was very indefinite as regards temperature. The child had gradually become comatose, and at the time I examined the patient there was complete coma. This was interrupted, occasionally, by the typical cephalic cry; the neck was rigid; the head drawn back; there was some paralysis of the ocular muscles; there was distinct optic neuritis, and most pronounced emaciation. The patient died a little later. An autopsy showed a walnut-sized sarcoma of the frontal lobe, with diffuse sarcomatosis of the pia mater of the brain and cord, the nodules varying from those of minute size up to those the size of a hazelnut. This rather rare case has been reported by Dr. Weaver in the *Journal of Experimental Medicine.* In looking over the history again in the light of the post-mortem, I think there are two facts which should have drawn at least suspicion toward the existence of such a condition rather than that of tuberculous meningitis, namely, the long continuance of the disease, which extended over fully ten or twelve weeks, and the fact that there was but slight elevation of temperature. The fever was intermittent, but the elevation of temperature was very slight, seldom up to 100.

ARSENIC HYPODERMICALLY.

Ass't Prof. H. N. Moyer discusses this subject in the *Chicago Clinic* for July. He cites opinions, among them that of Prof. Walter S. Haines, saying: "Dr. Haines recommends that the pure anhydrous salt be used; as ordinarily found in the shops, it may contain from four to twelve molecules of water of crystalization. If this be driven off, by heating to 300 degrees, the resulting salt has a definite composition. With the formula Na_2HAsO_4, a 1 to 100 solution of the salt contains 53 percentum of the arsenic found in Fowler's solution, so, approximately, the dose of such solution should be about twice that of the liquor potassii arseniatis.

"The results with the use of this solution were excellent. In 127 injections, with a dose varying from 6 minims of a 1 per cent. solution to 15 minims of a 5 per cent., slight induration was produced 6 times; in 1 instance, with some induration, the skin was a little reddened and tender. In 1 case there was some ecchymosis, though this might have come from a little want of care in using the syringe. * * * That the slight irritation was not due to the salt was amply shown by the fact that the 5 per cent. solution caused no more irritation than the 1 per cent.; in fact, it was rather due to the quantity."

He believes the action of arsenic given under the skin is greater than by the stomach, for, "thrown into the cellular tissue in the form of a feebly alkaline and readily soluble salt, it is at once absorbed by the blood and carried to all the tissues."

NEW INCISION FOR EXPOSURE OF BILE-DUCTS.

Prof. A. D. Bevan, according to the *British Med. Jour.* of September 9, in an abstract of his paper in the July *Annals of Surg.*, objects to the incisions generally employed for exposing the gall-bladder, on the ground that these do not give room for extensive work unless they are made very long, and that when they are made very long they are apt to result in hernia. The incision introduced and recommended consists of a primary portion and two extensions. The primary part, which can be employed for exploration or simple cholecystotomy, is an *f*-shaped incision, from three to four inches in length, along or through the outer border of the rectus muscle. The extended portions formed by carrying on the curved extremities of the primary incision are added when required. These can be made from one to three inches in length, as the thickness of the abdominal wall and the character of the operation demand. When complete, this incision gives much freer access to the gall-bladder and the bile-ducts than can be obtained by any other form of incision. By a division of the rectus in part, and of the external and internal oblique, and the transversalis muscles, the margins of the incision can be widely separated without tension.

ETIOLOGY OF SCARLET FEVER.

Dr. W. J. Class, '94, Chicago, has brought credit on his alma mater, not only by the work he did for the Chicago Department of Health on cerebrospinal meningitis, previously noted in the CORPUSCLE, but also by his investigations into the etiology of scarlet fever. His report on the latter, as presented before the American Medical Association, has been published in the *Medical Record* (N. Y.) of September 2. He enters into the morphology, staining, biologic characters, pathogenesis and his control experiments. That his diplococcus scarlatinæ is the germ really responsible for this disease, he thoroughly believes, and he certainly seems to be on a "paying lead." The diplococcus resembles, as ordinarily seen in slides from fresh cultures, grown on his medium, a large gonococcus, the biscuit-shaped appearance being most evident in slightly-stained specimens. The cocci occur in bunches of from ten to fifty, and the individual coccus has no capsule, no flagella, shows no spores, and, examined by the hanging drop, no independent motion. He gives its diagnostic points in differentiation from other cocci.

TUBERCULOSIS OF THE PHARYNX.

Prof. E. Fletcher Ingals, in discussing this subject (*Jour. A. M. A.*, August 12, p. 386) recently, said: "If the infection results from sputum, we ought to have tuberculosis of the pharynx much more frequently than we do in tuberculosis of the lungs, therefore it seems that the infection must usually be through the blood-vessels rather than from the surface of the pharyngeal mucous membrane. A form of sore throat, known as scrofulous, that causes large and comparatively deep ulcers, sometimes occurs, in which we do not know the exact etiology. It has been thought that these cases are generally the result of an inherited mixed infection of tuberculosis and syphilis. At any rate the ulcer is likely to occur in individuals whose parents have had one or both of these diseases. These cases occur in comparatively young children;

they do not present the appearance that we commonly see in tuberculosis of the pharynx, nor that of the deep ulcer of syphilis. As a rule, these ulcers have beveled edges and they are about midway in depth between the tubercular and deep syphilitic ulcers. In such cases it is difficult to determine whether there is a tubercular process or not for we are not likely to discover the tubercle bacilli, and I think they have been sufficiently studied. I have seen a few of these cases and have found that they generally yield to the treatment that I commonly employ in tertiary syphilitic ulcerations of the pharynx. This consists of the tincture of iodin in full strength, carefully applied until the surface has a dry brown glazed appearance. These applications are made daily for about ten days and then less frequently, usually for about two weeks until the ulcer is healed. At the same time the patient is given moderate doses of iodids, and nux vomica or other tonics as indicated."

LONGITUDINAL SILVER-WIRE SUTURE.

Dr. M. L. Harris, '82, Chicago, in a paper on this subject (*Jour· A. M. A.*, August 12), considers the most important incision with which we have to deal, that of anterior median erliatomy. In the selection of suture material, he gives, as the points which especially enter into competition; 1. ease and certainty of sterilization; 2, imbibition capacits or extent to which fluids are permitted to pass along the suture. He then considers these points with reference to suture materials and cites experiments, concluding that, judged by the two points above, the materials stand in the following order of excellence: wire silkworm gut, silk catgut. Another point in favor of the wire suture is its rigidity, which prevents the least gaping or bulging of a wound. He describes the technic of application of the suture.

FOREIGN BODIES IN BRONCHI, ETC.

Prof. E. Thatcher Ingals, in a discussion of this subject (*Jour. A. M. A.*, August 5, p. 352) said that in the case of a foreign body of any considerable size in the trachea, operation should be advised at once, after other procedures have been tried, such as inverting the patient. There is always danger while the foreign body remains, but in a large percentage of cases they will be spontaneously expelled. Even small bodies are often difficult to remove.

He cites the case of a woman who had inhaled about five-eighth of an inch of a match. He thought he could localize the foreign body at a point about an inch and a half below the main right bronchus, by the pain of which she complained, but could not tell from the resdiratory murmur; yet he was satisfied there was something in the air passage. He did a tracheotomy, but did not get the foreign body, so kept a tracheotomy-tube in the trachea for a few days, as is best in cases where we do not find the body we are after, and the day he removed the tube she coughed up the match.

He once operated on a child for a button in a branch of the bronchus, that had gone so far in that it could not be reached. In that case he felt confident the body was present, from the localized rales, but there was no distinct obstruction. The tube was worn for four or five weeks, but the button was not secured until about five weeks afterward, when it was coughed out. The usual recommendation is that we stitch the edges of the trachea to the integument, if the foreign body is not obtained at the time of the operation, but he does not consider this a good procedure. A better plan is to have in a large tube for a few weeks, and make repeated efforts to get rid of the foreign body.

TREATMENT OF ACUTE PERITONITIS.

Dr. A. J. Ochsner, Chicago, in discussing this subject recently (*Jour. A. M. A.*, August 5, p. 326) said of his treatment: "Usually the infectious material is primarily localized, either in the apendix or in the Fallopian tubes, and this material is distributed to the other portions of the peritoneal cavity by the motion of the small intestines. If this motion is prevented in the early part of the attack the peritonitis will remain very limited, and correspondingly harmless. The omentum naturally surrounds any infected intra-abdominal area, and the small intestines apply themselves against the omentum; but as soon as food is taken into the stomach, the peristaltic motion of the small intestines, which is always sure to occur at once, disturbs this condition and distributes any septic material with which parts of these organs may have come in contact. On this physiologic fact is based the treatment which I now employ in these cases. These patients are given absolutely no food by mouth, not even a small amount of milk or gruel, because it requires but a very small amount of any kind of food to kill them. If food is given it will simply decompose and increase the amount of septic material in the intestines; it will form gas which will distend the intestines and favor the passage of the colon bacillus through the intestinal walls. But aside from this, the fact that it will give rise to peristalsis is alone enough to condemn the giving of food by mouth in these cases. If there is stercoraceous vomiting I wash out the stomach, and if no further food is given this will usually permanently stop the vomiting. The patient receives from three to five ounces of predigested food or enema every three hours.

Many of the patients come into the hospital with the abdomen enormously distended, a pulse raging from 120 to 160 per minute, and a temperature ranging from 101 to 104.5 F., presenting precisely the same clinical picture that many others had shown who almost invariably died after a laparotomy of last resort, and still a very large proportion of these patients recover. I have frequently opened the abdomen in these patients later. and found gangrenous or perforated appendices, or extensive adhesions following a ruptured pyosalpinx, proving the correctness of the original diagnosis. As long as the patients vomit I wash out the stomach. Then they get rectal feeding, three to five ounces of the liquid food, of some kind, every three hours, and absolutely no nourishment by mouth. If you stop feeding them the small intestines will not churn around the septic material with which they come in contact, and no more food decomposes in the intestines because none is placed there. The decomposition products, and especially the colon bacilli, find a chance to get through the intestinal wall if food is given, because of the gaseous distension of the intestine, which does not occur if food is absolutely prohibited.

The Corpuscle.

Rush Medical College, Chicago, Ill.

In Affiliation with the University of Chicago.

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INTRODUCTORY ADDRESS DELIVERED IN RUSH MEDICAL COLLEGE, OCT. 4, 1899.

By J. Clarence Webster, B. A., M. D. (Edin)., F. R. C. P. E.,

Professor of Obstetrics and Gynecology.

For many ages it has been the custom in the majority of institutions in which medical instruction has been given, to commence each year of study with some kind of inauguration ceremony. In the ancient schools of India this was of a very elaborate nature. The assembled teachers and students made votive offerings to the gods, invoking their aid and blessing on the labors of the year, solemnly consecrating their lives to the high purpose of their noble calling. At the same time one of the teachers, selected for the occasion, addressed the students with words of admonition and counsel, urging them, as a Sanskrit record puts it, to be "chaste and temperate, speak the truth, obey in all things."

It might have been expected that this medical school, having entered into affiliation with the great university which has abolished the universally adopted time distinctions, and whose machinery, like the "mills of the Gods," knows neither ending nor beginning, would have ceased to perpetrate this ancient custom But it is evident that the authorities, iconoclastic as their hand has been in many directions, have not dared to interfere with a ceremonial hallowed by more than a thousand years of continued observance. And they have, indeed, herein showed their wisdom. Even in this democratic country we cannot shake ourselves free of all tradition and precedent, nor afford to disregard many of the forms of life and thought which have been gradually evolved by our ancestry in the older civilizations of the world. Among all peoples ritual and ceremonial have ever seemed to add dignity, impressiveness and stateliness to life in its various departments—religious, social, military and political. Without them a community would be but a composite organization, in which the individuals lived a loosely correlated existence. It is necessary for the high advance of a complex organic body, such as a city, state or nation, that there should be a generalized intelligence, a common imagination, a common conscience. Ceremonials and ordinances are but the focusing points for the composite life of the people. They stimulate the eye to seek a wider horizon than that which circumscribes the existence of the individual; they quicken the sympathies, leading them to a wider embrace than that of a man's particular narrow sphere; they ever teach that the welfare of all is the duty and care of each.

The importance of ceremonials has been recognized nowhere with greater force than in the academic world, and while it is true that in many centers of learning some have been preserved which have long lost their original significance and influence, there still exist certain ones in which the kernel as well as the husk remains. Such a celebration as that in which we are engaged to-day, simple though it be in form, is one which should appeal with much significance to each of us. Though outwardly distinguished as teachers and undergraduates, we are in reality a band of fellow-workers and investigators in the highest order of organized life. Our common motto is that of the great Sydenham:—"Thou, Nature, art my goddess; to thy law my services are bound." Together we dedicate afresh our power to our high calling, our common aim being earnestness of purpose and honesty in execution.

The responsibility which rests on the speaker chosen for such an occasion is a great one, and, indeed, it is no easy task adequately to do justice to it. In the present instance he who has the honor of addressing you is conscious of another burden. He succeeds a man long distinguished in this school for high professional attainments and rare qualities of heart and character. He comes to you a stranger, knowing no one among you, known to none. In his maiden appearance he has no hesitation in appealing to your indulgent consideration, and in doing so he feels that it will be extended to him in no stinted measure. Though belonging to another country and educated under distant influences, his reception in this school has been already marked by such cordiality as to make up, in large measure, for the sorrow which necessarily attends him who breaks from old associations, and to render easy the work of establishing new relationships.

Indeed, it was the recognition of the existence of a congenial atmosphere which served largely in enabling him to take the step which has brought him here.

I feel that I may well congratulate myself on being privileged to take part in the work of an institution of such high standing as the Rush Medical College. But, when I remember that this College is now affiliated with the University of Chicago, I realize that the honor of this privilege is greatly accentuated.

The great exhibition of 1893 revealed to the world that Chicago was a center of enormous and varied commercial activities—that, indeed, it represented the most marvelous industrial development which the world has known.

Since that year a new phenomenon has made its appearance, rivaling in magnitude all the enterprises of this wonderful city, and now rapidly establishing itself as one of its chief glories. I mean the University of Chicago.

During my recent visit to Europe, I was struck with the amount of interest everywhere evinced in educational circles in this new prodigy of the West. Everywhere the highest admiration was expressed for the magnificent generosity of its founder, and for the genius of the man to whom is due its organization.

The most wonderful academic development of modern times in Europe has been the University of Berlin, which was begun by Frederick William of Prussia, amidst the whirlwind of desolation and ruin following in the wake of the great French conqueror. But it has taken nearly a century to raise that stately edifice to its present commanding position. Here, in the short space of seven years, there has developed an institution which already occupies a foremost place in the academic world—and it is only in its commencement.

The establishment of a university might well appear to be an easy matter so often is it attempted. Were the magnitude of the task at all widely appreciated, there would not be such an abundance of dismal failures as are now found in the world.

The distinguished Oxford scholar, Cardinal Newman, compares the undertaking to the creation of an empire. Speaking of the latter achievement, he says that just as it carried with it the unequivocal token of genius in the race which effects it, so the erection of a university on successful lines implies the same high order of mind.

The task is of supreme difficulty, according to this thinker, "because it is pledged to admit, without fear, without prejudice, without compromise, all comers, if they come in the name of truth; to adjust views and experiences, and habits of mind the most independent and dissimilar; to give full play to thought and erudition in their most original forms, their most intense expressions, and in their most ample circuit. To draw many things into one is its special function, and it learns to do it, not by rules reducible to writing, but by sagacity, wisdom and forbearance, acting upon a profound insight into the subject-matter of knowledge, and by a vigilant repression of aggression or bigotry in any quarter."

In the Old World, university life is of slow growth. Everywhere the conservative principle predominates. The influence of tradition is strong. The incrustations of centuries are hard to destroy. The tendency is ever to move in the narrow grooves channelled by older generations. As the ages advance these channels become deeper and narrower, the communications between them less frequent, until at length the inhabitants of the academic world may be found to move only in a series of deep ruts, their range of vision restricted, their sympathies dwarfed, their sensibilities to outside influences greatly blunted.

Do not for a moment imagine that this description refers to the Old World alone. On this continent, indeed, it must be admitted that some of the older places of learning, at various times, have come within the range of its application.

Nor must you believe the majority of the Old World universities now fall under the censure of such a description. In the last century undoubtedly it could have been almost universally applied, but within the last hundred years most of them have felt the impulse of new movements of thought. The American and French revolutions struck at the roots of conservatism and bigotry in all departments of life, and ever since the Eastern and Western Continents have been permeated by the new leaven of liberalism.

Nowhere has the revolutionary influence been more strongly felt than in universities. The bondage of mediævalism has been broken, and the fetters of formalism and prejudice removed. They no longer exist apart from the world in exclusive isolation, the pride and privilege of a select caste. They have entered into the warp and woof of the life of the people. Their function is to urge all men to seek after that wisdom which is the principal thing worthy of attainment. Theirs it is to act as arbitrators, amidst the clashings and confusion of the intellectual world, determining in what true wisdom consists. They are the conservators of the highest thought and the disseminators of that knowledge which is fitted to lead to the noblest development of the man and the citizen.

This conception of the university is not the product of any one man, or of any one country. It has gradually evolved, many influences having contributed to its establishment. Mind has reacted upon mind, country upon country, ideas have been interchanged, and the new ideal has been almost universally accepted. Its practical expression has, however, not yet been fully realized.

Here is, it seems to me, the great opportunity of the university with which we are connected. Judging by its past progress, there is every hope of the attainment in actual experience of that conception which I have placed before you. It is not necessary to detail the various lines along which this progress has been made, and along which advance must be continued. I may, however, specify certain characteristics which are associated with this school and which appear to me to be of supreme importance.

First of all is the principle of "the open door" in the selection of members of the teaching staff. To become emancipated from the influences which are always abundant near an institution of learning, viz., private interest, the claims of friendship, sectarian prejudices, social jealousies and partisan intrigues, and, in the making of appointments, to keep most prominent before the mind the chief desideratum, viz., the highest welfare of the institution, is, indeed, to have reached a moral elevation of which a governing body may well be proud. The exercise of their functions, inspired by a spirit of such lofty independence, must be to them the cause of continual gratification, and to all who work under them, in whatever capacity, as well as to those who entertain a hope of some day entering into relationships with them, a continual source of confidence and respect. Nothing is more satisfying to a young worker than to feel that the heads of his college or hospital are absolutely just, will award professional honors on the ground of professional merit, will not foist upon him unworthy colleagues, nor in any way hamper the progress of the institution along the lines of the most scientific methods. In this connection I should like to put on record my high appreciation of the governing body of the Royal Victoria Hospital, Montreal, with which I have been connected during my residence in that city. Its magnificent equipment, its splendid administration, the commanding position to which it has in so short a time attained, are in a large measure due to the wise management, the independence, the impartial justice, and the keen desire of the governors to give the most generous support and encouragement to all in the service of the hospital.

A university, like the mind, must be allowed to exercise its functions untrammeled to attain the best results. That one which is allowed to choose its men and its method with the greatest freedom will, *ceteris paribus*, most rapidly and effectively fulfil its highest destiny.

"The world is my parish" was the motto of a great preacher, and it is worthy of adoption by a university which hopes to thrive. Inbreeding both in the natural and academic worlds leads inevitably to one result—deterioration Moreover, in university life it is apt to lead to an undue degree of arrogance, of self-conceit, of intellectual narrowness, and to the loss of that peculiar quality of culture which is only developed by constant interchange of ideas with men of varied manners and experiences.

A city may establish a corner in wheat or copper. A university can never develop a monopoly in ideas. It must never say that with it all wisdom lies. It must never shut itself within a carapace of self-sufficiency, but must ever present a sensitive surface to the great outside world, quick to absorb new impressions, new ideas, new inspirations. Moreover, it must be regarded as a complex organic unity, requiring ever the ingestion and assimilation of varied nutritive supply, ever renewing itself in strength, ever casting off the effete and useless. It is to the credit of the English-speaking race that these necessities are being recognized in its universities to such a marked extent. In the Mother Country geographical limitations no longer determine their selective functions. England, Scotland, Ireland and Wales are now beginning to draw freely from one another. They have long furnished teachers to the great colonies, and now in return they are seeking men in all parts of the Empire. But they are not limited even by their wide imperial boundaries. The Continental European countries and the United States have on numerous occasions yielded to Great Britain's demands for the best brains. During this very year she is drawing on Johns Hopkins, on Buffalo, and on Harvard for lecturers in London and Edinburgh.

In these days when so much is being said about Anglo-American harmony, whatever may be the disputes between diplomatists and politicians, should it not be the earnest prayer of every thoughtful man that between our intellectual leaders and our centers of learning there should be an ever-growing harmony, a widening fellowship, a more united endeavor in the search after truth, in the dissemination of intellectual enlightenment, in the attainment of justice and righteousness in national life?

Another prominent feature in the programme of this University is the insistence with which it urges the teaching-staff to aim at a high standard of work. I do not know any state of matters more deplorable than that by which a teacher is allowed to regard his chair as a dignified resting-place where he may spend his advancing years in ease and pleasantness—a well-merited reward for zeal exhibited in early years, or by which he is permitted to regard it mainly as a means of improving his own worldly position. Then, there is an ever-present danger to which men of all degrees of mental endowment are liable, viz., of becoming narrow, stilted, pedantic and dull, by the continuous routine of professional work. No doubt, these dangers will not affect a man with a supreme sense of duty, of exuberant energies, or of keen ambition, yet it must be confessed that the majority of teachers are more or less liable to be affected by them. How are they to be avoided?

In the first place, it seems to me that there must be a strong energizing head to a university whose example is a stimulus and an encouragement to all, whose sympathy is felt by all, whose watchful eye is over all. His influence continually radiating outward toward the various departments is felt by each responsible head, who, in turn, affects those under him. It should, indeed, be a repetition of the enthusiasm and earnestness with which a great general inspires his army during the progress of a successful campaign.

Then, too, the influence of one department upon another is very important in determining the quality and level of work. The more complex the organization, the more vigorous will be the intellectual output, the higher the standard by which men measure themselves, the more likely to be found those great enough to elevate the standards. It is for these reasons that a medical school is certain to lead a fuller and richer life when it forms part of a great university than when it exists as a separate corporation.

Another important factor in keeping up a high level of work is devotion to original investigation. The encouragement of the research spirit on the part of the teaching staff cannot be too highly commended to the authorities of any university. The leading teachers of Europe have ever been those who have most strenuously sought to fathom the mysteries and solve the difficulties of the subjects in which they give instruction. Need I do more than mention to you a few such names as those of Helmholtz, Virchow, Simpson and Lister? I do not for a moment mean to state that the power of investigation implies an aptitude for teaching. Indeed, there are numerous examples of a combination of excellence in the one and deficiency in the other. The power to teach is either born in a man, or it is not. In the latter case it is very rare that a man can by any means develop himself so as to reach high rank. But I do insist that, whatever a man's teaching ability, he will communicate his knowledge with more force and with more enthusiasm if he be an original worker in his own subject than if he be merely a compiler of the work of others. In the great family of universities honor and rank are awarded not because of magnificent buildings, elaborate fittings, great endowments, or even on account of excellence in tuition and examinations. They are bestowed solely in virtue of the originality, force and judgment exhibited by the best workers in their investigations in the region of the unknown. On this Continent, so occupied during this century with the practical necessities of life, far less attention has been paid to research in our teaching centers than in those of the Old World. Now, however, the recognition of the importance of this sphere of intellectual activity is already producing marked changes. The work done by Johns Hopkins in this direction, for example, is one of the most interesting features in the educational development of America. All honor is due to those who in the midst of active professional life, and of temptation to material aggrandisement, have devoted time and energy to scientific research. It is beyond the province of this address to make any special reference to these, but I should like to mention one name as particularly deserving of respect in this connection, viz., that of one of your own professors, the chief of the department of surgery.

And now I desire to say a few words to those among my audience who are about to commence the study of medicine in this school. You are all aware, or doubtless the majority of you are, of the efforts which have been made, and are being made, to provide you with the very best educational facilities. How will you respond to these efforts? What is your purpose and determination as you enter upon your labors? The majority of you are here to acquire the professional knowledge requisite to enable you to gain a livelihood in after years. Have you decided to strive after the maximum, or to be satisfied with a bare minimum? The choice at this stage is a most important matter, and will affect your progress not only in college, but during your whole life. Let me urge you to ponder well and to decide wisely. Dedicate your powers from the beginning to the highest service of the calling which has brought you hither. Many of you may look forward to the examinations which you require to pass as the determinants of your activities during the next four years. Let me ask you to forsake at once such an attitude of mind. Examinations are but rude tests of men's abilities and knowledge, necessary though they be. The wisest man is not always he who makes the best appearance in them. An examiner may often be de ceived by a student's glibness or dexterity. I ask you not to think only of the professional tribunal, but rather to test yourselves continually before the judgment-seat of your own conscience. Only in this way will you be enabled to study to best purpose, to concentrate your energies in surmounting difficulties, to avoid all influences which distract you from the main object of your life, and to enjoy the highest happiness which intellectual life affords. But a student's aims may be high, and his determination keen, and yet his work may be far from productive of the greatest gain to himself. It is necessary to learn the art of study, to know how to expend one's time and energy most effectively. It is a universal observation that the majority of medical students are, at the commencement of their course, most deficient in those habits of mind which are most important to them. That our methods of preliminary education are mainly responsible for this fault, is, unfortunately, too true.

From our earliest days we are taught to memorize and to cram from books with ceaseless energy. Little attention is given to the training and development of our powers of observation and to the habit of inductive reasoning. In spite of the protests and pleadings of advanced educationalists for the adoption of more rational methods of developing the minds of our youth, primary and high schools are slow to change their ways. It is for this reason that medical schools are everywhere urging that their students should come to them with the higher training which a university affords, especially in those branches which demand the scientific habits of thought.

Your work in medicine, gentlemen, is not to consist mainly in burdening the memory with facts and theories. You are here to study the manifestations and processes of organic life. It is the mind of the naturalist that must dwell in you. Regard the medical school as a huge laboratory in which you are to investigate. You have not come here to learn from text-books or from your professors. These agencies are necessary to you, but they are to be used only as your guides, as means of assisting you in your own study of Nature and in the interpretation of your observations.

Educate your senses. Cultivate precision in observation. Practice accuracy in description. Test the knowledge which you acquire from your books and teachers by your own practical experience. In this way develop the critical faculty, not in a carping or sensorious spirit, but with judiciousness and earnestness. Do not be satisfied with the bare accumulation of facts. Learn to establish comparisons between them, to correlate them, give to them their proper proportional values. Above all things, avoid two great faults common among scientific workers, viz., on the one hand, hasty generalization from insufficient data or from immature consideration of them, and, on the other, the habit of wild speculation. Most of the hindrance to the steady and rational advance of scientific truth arises from the confusion attendant upon the committal of these two deadly sins.

By steady progress in the disciplining of yourselves on the lines which I have indicated, you will acquire those habits of mind which are of the highest service, not only in the practice of medicine, but in the greater exercise,—practice of living. For in the performance of our duties as men, what qualities can serve us better than acuteness and precision in our powers of observation, orderliness and proportion in the arrangement of facts, balance and discretion in estimating the value of evidence? What habits are more needed than those of continuous industry, unswerving devotion to the determination of what is true, sacrifice of narrowness of thought and bigotry of opinion, keen discrimination between worth and worthlessness, between the essential and the accessory, the formation of passionless judgments with independence and self-reliance! Of a certainty no scholastic discipline is better fitted to furnish a higher mental and moral training than that to which the conscientious student submits himself in the study of medicine.

Moreover, it appeals to our inner natures as does no other line of work. We are brought face to face with the mystery and wonder of life and death. We are continually reminded of the greatest of problems, transcending in importance all those of physical science and demanding our most reverend consideration. We watch in manifold variations the breach of physical law and the relentless punishment which follows its transgression.

The cry of the outcast and the suffering ever reaches our hearts, and we experience the precious consolation which attends the bestowal of human sympathy.

Thus, gentlemen, as we endeavor to form for ourselves an ideal of what the physician should be, let us remember that it should embrace the characteristics which I have mentioned, which, indeed, were long ago more tersely enumerated by Hippocrates himself as indispensable to every good physician—*learning, sagacity, probity, humanity.* Whatever be our success in the practice of medicine, may it fall to each of us to deserve the enconium paid to Sydenham, the Hippocrates of the seventeenth century, by a well-known physican of our own time, viz.: "Human life was to him a sacred, a divine, as well as a curious thing, and he seems to have possessed through life, in rare acuteness, that sense of the value of what was at stake, of the perilous material he had to work in, and that gentleness and compassion for his suffering fellowmen, without which no man—be his intellect ever so transcendent, his learning ever so vast, his industry ever so accurate and inappeasable—need hope to be a great physician, much less a virtuous and honest man."

COOK COUNTY HOSPITAL EXAMINATION QUESTIONS, 1899.

ANATOMY.

1. Give branches of internal maxillary artery.

2. Describe, briefly, the knee-joint.

3. What is: a, duct of Steno; b, duct of Wharton; c, ducts of Rivini; d, membrana eboris; e, gubernaculum testis; f, round ligament; g, canal of Nuck.

4. State all structures you would cut in amputating arm at its middle.

5. Where is sphenoidal fissure? What goes through it?

6. Origin, function and distribution of circumflex nerve.

7. Surgical anatomy of inguinal hernia.

CHEMISTRY.

1. Define: a, polymorphous; b, ismorphous; c, amorphous. Significance in chemical nomenclature of *ic*, *ite*, *ous*, *ate*. Use of termination *ide*. Example of each.

2. Chemical formulæ for ether, chloroform, urea, and tartar emetic. Formulæ, atomic weights and quantivalence of hydrogen, oxygen, sulphur, zinc, arsenic, phosphorus and carbon.

3. Define specific heat. Compare specific heat of iron and water, of mercury and water.

4. What occurs when salicylic acid and benzoic acid are heated with lime? Mention the chief product?

5. Mention a hydrocarbon and give its formula. Complete the formulæ: a, $3\,CuS+8HNO_3=$; b, $MnO_2+H_2SO_4=$.

6. How many volumes of nitrogen and how many of hydrogen in two volumes of ammonia gas?

EYE AND EAR.

1. Mastoid abscesses; a, symptoms; b, indications for operation.

2. Differential diagnosis between iritis and acute inflammatory glaucoma.

3. Conjunctivitis neonatorum.

GYNECOLOGY.

1. Essential causative elements in prolapsus uteri. Give the treatment of each causative element.

2. Pathological anatomy of gonorrhea in the female.

3. Describe the operation of vaginal hysterectomy.

MATERIA MEDICA.

1. Therapeutics of water.

2. Thyroid extract: action; uses.

3. Therapeutics of opium.

4. Dose of: dilute sulphuric acid; atropin sulphate; sodium sulphate; zinc sulphate (emetic); calcium sulphid.

5. Arsenic poisoning: symptoms and treatment.

OBSTETRICS.

1. Diameters of fetal head; of pelvis.

2. Puerperal fever: factors in its cause; how to prevent.

3. Treatment of the breasts in the puerperium.

4. Diagnosis and treatment of placenta previa.

5. Puerperal eclampsia: treatment.

PATHOLOGY.

1. Results of pulmonary embolus.

2. Describe the bacillus of diphtheria.

3. State all the structures where primary carcinoma may occur.

4. What is the pathology of locomotor ataxia?

5. Pathologic anatomy of congenital syphilis.

PHYSIOLOGY.

1. What is the result of section of the sensory branch of the fifth nerve?

2. What is an enzyme? What points are characteristic of all? What ones are found in the body? What do they do?

3. Various forms of white blood-corpuscles. Percentage of each form. Function.

4. Chemical constituents of perspiration.

5. Quantity of urine passed per day by a healthy man? Quantity of urea?

6. How do sensory stimuli act on respiration?

PRACTICE OF MEDICINE.

1. Cardinal symptoms in typhoid fever: a. for typhoid; b, against typhoid.

2. Urine of typhoid fever.

3. Diagnosis of liver abscess.

4. Degenerations following hemorrhage in the internal capsule.

5. Diagnosis between cancer of stomach and gastric ulcer.

SURGERY.

1. Diagnosis and treatment of fracture of fifth cervical vertebra.

2. Pathogenesis of osteomyelitis in the long bones.

3. Diagnosis and treatment of urinary calculus.

4. Differential diagnosis of symptoms of: stone in gall bladder; stone in cystic duct; stone in common duct.

5. Goitre: different forms, differential diagnosis and treatment of each.

6. Symptoms of thrombus in sigmoid sinus. Technique of operation.

7. Give causes and treatment of delayed union of fractured bone and pseudo-arthrosis.

Dr. Benjamin H. Bean, '77, Cherry Valley, Ill., died recently.

Dr. A. B. Bracket, '69, died at his home in Goldfield, Iow October 9, of cancer.

The Corpuscle

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MEMBERSHIP IN THE ALUMNI ASSOCIATION OF RUSH MEDICAL COLLEGE is obtainable at any time by graduates of the College, providing they are in good standing in the profession, and shall pay the annual dues, $1.50. This fee includes a subscription to The CORPUSCLE for the current year. This journal is the official organ of the Association.

Dues and all communications relating to the Association should be sent to
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THE AUTUMN QUARTER.

The opening exercises of the Autumn Quarter were held in the upper amphitheatre the evening of October 4, the address of the evening being delivered by Prof. J. Clarence Webster, successor of the late Prof. James H. Etheridge. We have the pleasure of printing the address in this number of the CORPUSCLE. Following the address a reception was given, much enjoyed by all, and affording an opportunity for meeting new and renewing former acquaintances. And Rush has settled down to the regular routine again, lectures, recitations, clinics galore, and to look at the new schedule one wonders whether there could be a single additional exercise found time for. Indeed, prospective students have evidently been impressed with the excellent courses offered, as, up to going to press (October 21), the registration has been 828—a much larger registration than heretofore, for corresponding dates.

THAT DOWIE INVITATION.

In every college town it is proverbial that the college student can do and does do things that the ordinary citizen would not be tolerated in for a moment. It is so the world over, and the college man, whether he be a medical student, dental, pharmaceutic, or in a regular university, is given a certain leeway, and forgiven for a certain exuberation that sometimes gets even the college student into trouble, and the rest of the world often, indeed, gives him their sympathy. Perhaps it was this spirit of tolerance, perhaps it was the lack of faith that the officers and later the justice had in Dowieism, that let the Rush and other medical students off so easily—court costs—after the Dowie escapade of a few evenings ago. To the students it is now and old story, but alumni—who do not have access to Chicago dailies—will be interested in knowing that that fraud of all frauds—Dowie—ventured to scatter printed invitations about the medical schools, inviting the students to attend his lecture on "Drugs, Doctors and Devils", recently, and the true student spirit was only exemplified by the avidity with which the students of the several schools arranged to accept the invitation in a body and later attended. There was a certain harmless amusement, not only for the student, but for the "doubting Thomases" who may have been "on the fence" enough to give heed to a Dowie invitation, and be present, but the solid phalanges of students gave little opportunity for even "the faithful" to get into the hall, let alone the curious and "doubting Thomases", and even the speaker of the evening had difficulty in making his entrance, finally succeeding, thanks to the efficient work of the police. The Rush alumnus needs no picture of the scenes that transpired in that hall, while the "Reverend" labored long and with difficulty to make himself heard, all to no purpose; or of the later difficulties the "Doctor" met with in attempting to go home—difficulties that were only surmounted by subterfuges of the police which, to be sure, got him away in safety, necessitated the bailing out and later paying of court costs on the part of a number of students from each of the several institutions concerned. We regret that the "Doctor's" faith was not "sufficient to remove mountains", when in this case the mountain was only a student aggregation, though the police found it a formidable one. We regret also that the police lament a few uniforms much the worse for the acids, eggs, etc., which accidentally missed the "Doctor" who was saved by pinning his faith in the police, but a so badly scared man that he did not venture to fill his engagement on a subsequent evening, when word reached him that the students who had been unable to get into the hall before were on hand to greet him with a new supply of H_2S, benzol nitrite and ancient eggs. Whether he will venture to fill later engagements in the "Zion" branch he has opened on the West Side—Madison and Paulina Streets—remains to be seen. It will, we venture to prophesy, be no distant day when, under the present "persecutions"—as he calls them—of the State Board of Health, this evildoer under the guise of religion will seek pleasanter quarters than Chicago has been proving to be during the last few months.

THE CLASS OF 1900.

One almost wonders if it is possible that the class of 1900, a class that up till now in its college history has remained unorganized, has at last effected a class organization; but the rumor has been confirmed and the following list of officers furnished us for publication, with the information that the movement "went through with a rush": president, O. A. Dahms; vice-president, J. F. Smith; secretary, N. P. Colwell; treasurer, J. M. Mitchell; sargeant at arms, F. Foley; valedictorian, E. O. Benson; historian, David Fiske; poet, ? ?. Bachmann; prophet, J. V. White; chaplain, T. J. N. Gatrell. The Executive committee comprises the following: chairman, W. M. Phelps; R. E. Farr, H. D. Oggel, J. W. Shafer, E. W. Kleinman, J. L. Conway, W. H. Sheldon and ?. ?. Killen. The office of chorister has not yet been filled.

EDITORIAL VACANCY.

Two vacancies will shortly occur on the Editorial Board of the CORPUSCLE, to be filled from the student ranks. These vacancies are filled by competition, such students as may desire to try for the places, submitting some specimen of their literary work, as a paper thesis, etc. Such matter should be handed, *at an early date*, to some one of the present Board, or addressed to the CORPUSCLE, Rush Medical College.

ALUMNI AND COLLEGE ITEMS.

Assoc. Prof. J. B. Herrick is en route to Europe.

Prof. W. S. Haines is reported much better.

Dr. L. J. Wier, '96, is practicing at West York, Ill.

Dr. Max Ziselman, '98, has located in California.

Dr. Thos. A. McTaggart, '85, has been heard from at Pawnee, Ill.

Dr. Chas. D. Wright, '80, Rochester, Ill., has moved to Springfield, Ill.

Dr. Wm. M. Hanna, '86, is reported as doing well at Lisbon, Ill.

Dr. T. G. O'Connor, '96, has, we learn, located at Imogene, Iowa.

Dr. Wm. C. Johnson, '69, has moved to Springfield from Pawnee, Ill.

Dr. Leonard P. Rogers, '76, Buffalo, Ill., is to locate in Beatrice, Neb.

Dr. Chas. C. Reed, '78, Lincoln, Ill., is treasurer of the Brainerd District Medical Society.

Dr. Amos L. Norris, '72, is still in active practice in Farmer City, Ill.

Dr. Fred A. Guthrie, '96, is making good use of his Rush training, at Aledo, Ill.

Dr. D. A. Drennan, '75, formerly of Pawnee, Ill., is now located at Springfield, Ill.

Dr. Courtney L. Smith, '79, Aurora, Ill., is president of the Fox River Valley Medical Society.

Dr. Wm. G. Putney, '75, president of the LaSalle County Medical Society, is located at Serena, Ill.

Dr. Paul H. Fithian, '91, surgeon in charge of the Wabash hospital, Springfield, Ill., has resigned.

Dr. Herbert C. Jones, '83, has been heard from again. He is in practice at Decatur, Ill.

Dr. John J. Taylor, '67, Streator, Ill., is in Morrison, Colo., on account of ill health.

Dr. Elverton E. Major, '78, has moved from Anita, Iowa, to Colorado Springs, Colo.

Dr. John A. Schreck, '91, has been heard from at Cameron, Ill., where he is in practice.

Dr. James S. Collins, '80, is president of the Macoupin County Medical Society and practices at Carlinville, Ill.

Dr. E. W. Regan, '85, Canton, Ill., has been elected president of the Fulton County Medical Society.

Drs. Sylvester Thompson, '69, and Harry W. Waterous, '85, are the Rush alumni in practice in Galva, Ill.

Dr. J. W. Connelly, '90, Farmington, Ill., is an active member of the Fulton County Medical Society.

Dr. John D. Mandeville, '75, Philo, Ill., is president of the Aesculapian Society of the Wabash Valley.

Dr. Fred Barrett, '97, formerly Tower, Minn., writes from Eveleth, Minn., where he is in practice.

Dr. Chas. W. Hall, '87, is secretary and treasurer of the Galva District Medical Society, and practices at Kewanee, Ill.

Dr. C. J. Habhegger, '97, has completed his Cook County Hospital interneship and gone to Watertown, Wis.

Ass't. Prof. A. I. Bouffleur attended the meeting of the Am. Acad. of Ry. Surgeons, in Omaha, October 13 and 14.

Dr. E H. Butterfield, '84, holds the vice-presidency, and Dr. Wm. A. Pike, '96, the secretaryship of the Ottawa (Ill.), Medical Society.

Dr. W. S. Grimes, '74, Wapello, Iowa, has taken into partnership, in his practice, a Keokuk (Iowa) Medical College graduate.

Dr. Wm. F. Burres, '82, Sidney, Ill., is president of the Champaign County Medical Society. He is now doing post-graduate work in Europe.

Dr. G. A. Dicus, '90, Streator, Ill., is vice-president of the LaSalle County Medical Society, and assistant secretary of the North Central Ill. Med. Ass'n.

Dr. James Tweddale, '69, Washburn, Ill., is president, and Dr. F. C. Robinson, '63, Wyanet, Ill., second vice-president of the North Central Ill. Med. Ass'n.

Drs. E. L. Mitchell, '82, Roseville, Ill., and J. W. Standley, '72, Alexis, Ill., are vice-presidents of the Warren County Medical Society.

Dr. Chas. H. Voorhees, '93, Hutsonville, Ill., holds the vice-presidency of the Crawford County Medical Society. Dr. John Weir, '96, West Union, is secretary.

Dr. Charles Osborn, '90, Clinton, Iowa, read a paper on "Apoplexy", before the Clinton County Medical Society, October 3.

Dr. J. B. Haven, '80, who has been practicing at 103 State St., Chicago, has, we learn, been appointed consul to St. Kitts Island, West Indies.

Dr. J. H. Haines, '95, Stillwater, Minn., was married October 10, to Miss Ruth Josephine McKusick. They will reside in Stillwater.

Dr. Perry H. Stoops, '86, Ipava, Ill., is one of the committee recently appointed by the Fulton County Medical Society, to consider the building of a hospital at Canton.

Prof. Henry M. Lyman discussed the topic: "Do we Need a Code of Ethics," and Ass't. Prof. D. W. Graham, "How can we Improve it?" before the Physicians' Club of Chicago, recently.

Dr. J. I. Smith, '72, who has been practicing in Shannon, Ill., for twenty-five years, is said to be fatally ill. He served through the Civil war as a member of the 92d Illinois.

Dr. Chas. W. Sanders, '84, Manly, Iowa, according to the *Iowa Med. Jour.*, October, "was recently sued for mal-practice, but when the case was called the plaintiff failed to put in an appearance."

Dr. Ewing Morris, '84, Galesburg, Ill., has received considerable attention from the lay press of late, through his entry into a racing contest, with his automobile. May he win!

Late Prof. J. H. Etheridge was given a full-page portrait with extended obituary, by one of the leading Paris journals, the *Revue de Gyn* , July-August.

Ass't. Prof. Moyer, who was Chairman of the Committee of Arrangements of the Miss. Valley Medical Association, which met in Chicago early in October, is given a full-page half-tone in *Am. Med. Journalist* for October.

Dr. R. G. Sayle, '85, associate professor of anatomy in the Wisconsin College of Physicians and Surgeons, Milwaukee, delivered the address introductory to the seventh annual course of lectures in that school, recently.

Dr. David W. Edmiston, '73, Clinton, Ill., occupies the presidential chair of the De Witt County Medical Society. Dr. John A. Edmiston, '66, is also in practice in Clinton, and John Tyler, '57, who is secretary of this Society.

Ass't. Prof. J. H. Salisbury is favored with a full-page half-tone in the *Chicago Clinic* for August. The Doctor is to have charge of the department of medical chemistry and toxicology, which is to be inaugurated in the *Western Clinical Recorder* in November. His paper on the alkalinity of the blood, also the paper of Dr. M. L. Harris, '82, on his longitudinal silver-wire suture, both abstracted in the CORPUSCLE, were given extended mention in the *Post-Graduate* (N. Y.), for September.

Ass't. Prof. A. I. Bouffleur's name appeared on the program of the meeting of the Central Wisconsin Medical Society, at Baraboo, Wis., September 26. The subject of his address was "Treatment of Ptosis of the Abdominal Viscera (Splanchnoptosis)".

At the meeting of the Chicago Medical Society, September 27, Prof. A. D. Bevan described an operation for old dislocation of the elbow-joint. Assoc. Prof. O. T. Freer presented a case of laryngeal tumor, Prof. F. C. Hotz one of symblepharon relieved by plastic operations. Prof. E. Fletcher Ingals reported a case of aneurysm of the aorta, Dr. A. J. Ochsner, '86, one of fibroid of the uterus, and Dr. B. W. Sippy, '90, exhibited one of progressive muscular dystrophy of the Erb type. The cases by Drs. Hotz, Ingals and Sippy are reported at length in the *Phila. Med. Jour.* of October 7, and those of Drs. Ochsner and Sippy in the *Jour. Am. Med. Ass'n.* of October 7.

Dr. H. W. Sigworth, '63, Anamosa, Iowa, according to *Iowa Med. Jour.*, October, with his wife and daughter, "have just returned from a three months' tour of Europe, embracing Naples, Rome, Florence, Venice, Milan, Lucerne, Neuhausan, Boden, Baden, Heidelberg, Mayence, down the Rhine to Cologne, Brussels, Paris, London, Cambridge, Lincoln, York, Melrose, Abbotsford, Edinboro, the Trossachs, Locks Katrine and Lomond, Glasgow. His son, Dr. Harry, who graduated at Rush in May, attended to his practice and is now in partnership with him."

The summer quarter at Rush Medical College has been completed, and the experiment has proved a decided success. There were a hundred students attending the college regularly, of whom most were in the senior or junior classes. The clinics have been especially good in the summer, in many cases excelling those of the winter, and the small number of students allowed of a division into classes much smaller than in the winter term, and therefore much more satisfactory to the students. It would seem that the upper classes, which, for the most part, attend clinical work, would be more satisfied with the summer quarter than the lower classes, whose work lies largely in the laboratories and in the mastering of the sciences, and who complain of the unfitness of hot weather for hard work.—Asst. Prof. F. S. Coolidge, in *St. Paul Med Jour.*, October.

RUSH IN MEDICAL LITERATURE.

A case of aborted tubal pregnancy, related by Prof. N. Senn before the Chicago Gyn. Soc., recently, is reported in *Am. Gyn. and Obstet. Jour.* for September, p. 254.

Prof. A. C. Cotton's "Report of a Case of Anuria", which he presented before the American Pediatric Society, June 29, may be read in *Archives of Pediatrics* for October. The post-mortem report by Prof. Hektoen is included.

Dr. W. J. Class, '94, whose work on the etiology of scarlet fever was given in abstract in the CORPSUCLE for September (p. 79), has published a "Supplementary Note on the Etiology of Scarlatina", in the *Med. Record* of October 7, illustrated.

URINARY SOLIDS.

Ass't. Prof. J. H. Salisbury's paper on the "Clinical Significance of Variations in the Amount of Urinary Solids", printed in the August *Chicago Clinic*, contains much practical data that can not be given in abstract. Every medical man will find the paper worth his while for reading. The Doctor's methods and some experiments are given.

GANGRENOUS APPENDICITIS, AMPUTATION OF PENIS, FECAL FISTULA, AND TUBERCULAR ARTHRITIS.

Ass't. Prof. A. I. Bouffleur reports these cases in the *Clinical Review* for September. They are all cases from the bedside clinics given to sections of the senior class in Rush, and so the article will especially be worth the reading by members who saw the cases.

BLASTOMYCETIC DERMATITIS.

Prof. L. Hektoen writes on the "Organism in a Case of Blastomycetic Dermatitis", in the *Jour. of Exp. Med.* (IV, No. 3-4). The patient was one treated by Professors Bevan and Hyde, in the Presbyterian Hospital. He gives the results of the histologic and biologic examination, for which we refer those interested to the *Journal* above.

SURGICAL CLINIC.

Dr. A. J. Ochsner, '86, Chicago, reports cases of the following, from a surgical clinic in Augustana Hospital (*Clinical*

Review, September): Ventral hernia following appendectomy; acute appendicitis; inguinal colostomy; foreign body in the trachea; dermoid tumor; laceration of cervix and peritoneum, and tuberculosis of the epididymus.

SPINAL CONGESTION, HEADACHE, PROGRESSIVE MUSCULAR ATROPHY, MENINGITIS, AND ALCOHOLISM.

Prof. D. R. Brower has a clinical lecture on the above cases, delivered in the Cook County Hospital, in the *Clinical Review* for September. In the case of alcoholism, a new plan of treatment was tried and brought the patient out of his delirium in a remarkably short time, viz., two injections of sulphate of atropin daily. He was also given a hot tub bath, twice daily, to secure elimination of the alcohol by the skin and to sustain the heat and circulation.

VALUE OF INDICANURIA DETERMINATION.

Dr. H. Gideon Wells, '98, has a contribution on this subject in the *Western Clinical Recorder* for September. The paper covers observations he has made, the past year, on cases in the Cook County Hospital. He finds that: "Indican is present in the urine in sufficient quantity to be detected during simple constipation, the amount varying somewhat according to the duration of fecal stasis. Obstruction of the large intestine produces a much greater degree of indicanuria, and obstruction of the small bowel causes in a few hours the most intense reaction, so intense as to be almost characteristic. Large quantities of pus produce a reaction which probably varies with the amount of absorption that is occurring. In carcinoma of the stomach there is usually a reaction when the disease is advanced, but probably not until motility is affected. Epilepsy and neurasthenia are accompanied by a varying degree of indicanuria".

ATHETOSIS AND PROGRESSIVE MUSCULAR ATROPHY.

Ass't. Prof. Moyer considers these two conditions in the *Chicago Clinic* for August. The first, comparatively rare, usually occurs after attacks of hemiplegia and is closely allied to hemiplegic chorea. The majority of cases have occurred after paralysis of cerebral origin. He considers the distinction between neuritis and muscular atrophy, practically, of little importance, and in doubtful cases says it is as well to call it the latter. He gives for this, strychnin nitrate, increasing the dose in size and frequency until the full physiologic effect is produced, then lessens it, but continues it for weeks or months, until there is marked improvement, or it is clear that the drug will be of no benefit.

SPLENIC PSEUDOLEUCEMIA.

Dr. Bertram W. Sippy, '90, Chicago, has a long paper on this subject in *Am. Jour. of the Med. Sci.*, October. He reports a case, in detail, and considers the theory as to the origin and nature of the disease, also treatment. His gives as indications to be met in medical treatment, building up the blood and general nutrition, giving iron, arsenic, etc. He enjoins rest in bed and relief of constipation, if present. Diarrhea may be so persistent in the later stages as to require great care. He says the disease is only modified temporarily by internal modification. In considering the surgical treatment, he gives a résumé of the cases where splenectomy has been performed—seven—and says "that if the disease is primarily located in the spleen, and the pernicious course of the affection is due to the effect of the pathological changes in that organ upon the blood and general nutrition, it would be a rational procedure to remove the spleen as soon as the diagnosis is positive and when no special contraindication is present".

ASTHMA.

Prof. E. Fletcher Ingals is quoted in the *Boston Med.* and *Surg. Jour.*, September 28, p. 323, as not having found asthma associated with nasal polypi as often as have others. "Many cases came from riding behind horses, being near a stable, etc. It was not in these cases merely a question of dust, for these same people could ride a bicycle or behind oxen. In three cases the patients had asserted that they had had dyspnea from only one lung and that corresponded to the side which in these cases presented intranasal lesions. One patient was subject to asthmatic attacks when on the ground, but was relieved by going to the sixth story of a building- Removal from one house to another of the same character only a few blocks away has cured others. A change from one part of a house to another even has sufficed to relieve some cases. He had found that inhalations of a spray containing 3 per cent. of cocaine and 5 per cent. of sodium nitrite would often relieve apparently by a reduction of the bronchial mucosa's sensitiveness."

The same issue contains (p. 325) a brief report of his paper on "Fibrolipoma of the Epiglottis and Base of Tongue".

EMERGENCY SURGERY.

Prof. N. Senn's opening lecture on this subject, at Cooper Medical College, San Francisco, recently, is printed in the *Pacific Med. Jour.* for August. He spoke of the necessity of the general practitioner being familiar with this work and outlined his own method of teaching it in Rush, saying, in closing: "Emergency work implies hasty and yet careful work. What is to be done must be done at once. The excitement which often surrounds such cases should not disturb the calmness of the physician. The physician is calm, self-possessed, and confident if he is conscious that he is master of the situation. Originality and ingenuity are qualities essential to the successful practice of emergency work. The physician who can perform difficult operations with the least number of instruments, without assistance, and who can extemporize the dressings out of the simplest materials, is the one who will never be at a loss when confronted unexpectedly by a difficult case. Quickness of perception, ready resource, decision and promptness of action characterize the successful emergency surgeon. The physician who is qualified to practice successfully accidental surgery never forgets that he must keep himself always in readiness to respond to an urgent message. The few instruments necessary for this purpose are kept in a faultless condition in a canvas cover; his emergency bag contains an ample supply of dressing material, antiseptics in tablet form, reliable ligature and suture material, anæsthetics, stimulants, and a small medicine case, a hypodermic syringe, a good supply of rubber tubing and a Davidson's syringe complete the outfit."

TRAUMATIC SHOCK.

Prof. N. Senn has a paper on this subject, in the *St. Louis Courier of Medicine* (xxi, No. 1). He says that "it remains for the experimental investigators of the future to forge the key to unlock this mysterious complication." He considers the etiology, diagnosis, pathology, prognosis and treatment.

Diagnosis.—"In making a differential diagnosis it is important to study the nature of the injury and to make the necessary examination to detect the pressure and location of occult hemorrhage. In shock, the maximum symptoms of the full clinical picture presents this immediately after the receipt of the injury. In hemorrhage the symptoms increase in intensity progressively, and their severity bears some relation to the amount of blood lost. Convulsions usually precede death from hemorrhage, while they are absent in fatal shock. The most complicated cases, from a diagnostic point of view, are those in which shock and hemorrhage take part in the production of prostration. If the symptoms of shock present themselves immediately after an injury, as they always do, and after the patient rallies, again increases in severity, the probability of the existence of hemorrhage is great. The same suspicion must be entertained if the temperature continues to fall after the symptoms of shock are fully developed."

Treatment.—Considering this phase of the subject, he says he has been in the habit, for years, of preparing patients for grave operations by giving 2 oz. of whisky, by the stomach or rectum, an hour before the operation, and by injecting $\frac{1}{30}$ gr. of strychnin hypodermically a few moments before giving the anæsthetic. It is also important to prevent loss of heat and favor peripheral circulation by enveloping the limbs and body during operation. The treatment of shock is purely symptomatic. Rest in the recumbent position, the external application of dry heat to the body and extremities, the inhalation of nitrite of amyl, the administration of stimulants, such as alcohol, camphor, coffee and tea, constitue the usual routine of treatment for shock. The danger of causing burns must not be lost sight of in applying heat. Hot bottles and bricks, employed for this purpose, must be wrapped in flannel to guard against such undesirable complications. Alcoholic stimulants, hot red-wine, rum, whisky and brandy punch, deserve the preference. If spirits are used, an ounce should be given every fifteen to thirty minutes until reaction is established. In the gravest cases the remedy that will act most promptly is nitrite of amyl by inhalation. This drug is a powerful heart and vascular stimulant and will produce an impression in a few minutes, thus bridging over the most critical period until the administration of stimulants has a more lasting effect. Copious rectal enemata of hot normal salt solution are always valuable, and are never to be neglected in the treatment of pronounced shock. Subcutaneous or intravenous infusion of the same solution have had an extensive trial in the treatment of shock, and with the most encouraging results. Crile has experimented with the salt solution in shock produced by manipulation and irritation of the various tissues and organs of the body and favors the treatment by intravenous injections of warm saline solutions alone or with a dilute solution of strychnin, injecting slowly by means of the rubber tube of the injecting apparatus. Opium is contraindicated in the treatment of uncomplicated shock. If the patient can not swallow, or if nausea and vomiting interfere with the administration of stimulants, resorting to subcutaneous injections becomes a necessity. Groeningen recommends digitalis as a vascular stimulant in the erethic stage of shock. Opiates are indicated, but their use requires caution. Subcutaneous injections of sterilized camphorated oil can be relied upon as a valuable cardiac stimulant. Three or four hypodermic syringefuls administered every fifteen minutes until reaction sets in is the rule to be followed in the use of this drug.Electrical stimulation of the phrenic nerves and artificial respiration are indicated in shock. Goltz found that abdominal tapotement in animals was less dangerous where the peripheral nerves of the extremities were subjected to intense irritation, hence the value of sinapisms and electricity as therapeutic agents. Inhalation of oxygen recommends itself as a rational remedy when life is shortened by shock, particularly in cases in which the respiratory function is threatened. In shock, the absorbtion of all drugs, administered by the stomach or rectum or even injected into the tissues, is always slow, as shown by the experiments of Rogers and Brown-Sequard, hence care is necessary to guard against an accumulative action during the recovery of the patient. The experiments just alluded to seem to prove what observation has reported, that there is a diminished or suspended interchange between the blood or the tissues. The therapeutic value of strychnin in the treatment of shock is doubtful. Experiments on animals have demonstrated that this drug can not be relied upon in shock. Contejeans explains this by the fact that in animals, in the stage of shock, artificially produced, the spinal cord is seen to be anemic and not supplied with sufficient blood to convey the remedy to this center of innervation. Gscheidler has shown that the extract of the Calibar bean is a potent stimulant of the splanchnic nerves. Under its influence the peristalsis is diminished as well as the abdominal plethora, however, experiments are necessary to establish the therapeutic reliability of this powerful remedy in the treatment of traumatic shock.

BOOK NOTICES.

PRACTICAL ANATOMY, Including a Special Section on the Fundamental Principles of Anatomy. Edited by W. T. ECKLEY, M. D., Professor of Anatomy in the College of P. & S., University of Ill., etc., and Mrs. Corinne Buford Eckley, Professor of Anatomy in the Northwestern University Woman's Medical School, etc. Pp. 476., With 334 Illustrations, many in Colors. $3.50. Philadelphia: P. Blakiston's Son & Co. 1899.

Eckley's Anatomy stands very high among books of its class, and was published as a companion volume to Morris' Human Anatomy, "with a view of unifying the practical and descriptive work," and it has certainly met the expectations of the publishers, and the approval of anatomists generally.

This volume considers the gross anatomy only, for instance the contents of the orbit—as the nerves, vessels, muscles—as found on the cadaver. The sympathetic nerve receives several pages of attention, as the author considers that the student should dissect this thoroughly, "for the purpose only of teaching him to find on the cadaver the relation between sympathetic and their parent somatic nerves." One of the noteworthy features is the plan of illustrating the attachments of muscles to bones in colors, with a view to impress the student as to the necessity of tracing muscles to their exact origin and insertion, when dissecting.

The author adopts the following order of arrangement of subjects, sub-dividing each: Fundamental principles of anatomy; the head and neck; shoulder, arm, forearm and hand; the thorax; the abdomen; contents of pelvis; thigh and leg; pelvic outlet (male); pelvic outlet (female); posterior part of shoulder, arm, forearm and hand; posterior part of lower extremity; the back; summary of cranial nerves; articulations—ligaments; some interesting facts about veins.

Many of the illustrations are from Morris, but a large number are original. The press work is excellent, the clear type and clearness of the illustrations, making the consultation of this work a pleasure, and it is one of the best arranged and most satisfactory dissection manuals we have seen.

A COMPEND OF THE PRACTICE OF MEDICINE. By Daniel E. Hughes, M. D., Chief Resident Physician, Philadelphia Hospital; Physician-in-Chief, Insane Department, Philadelphia Hospital; Late Demonstrator of Clinical Medicine in the Jefferson Medical College of Philadelphia, etc. Sixth Physicians' Edition. Thoroughly Revised and Enlarged. Flexible Leather, $2.25. Philadelphia: P. Blakiston's Son & Co. 1899.

The author's intention in this Compend, has been to aid medical students, it being first published at a time when "practical demonstrations and ward classes were the exception in the college curriculum." The work met with such favor among physicians. however, that now, in this sixth edition, the original plan has been somewhat enlarged on, making it more useful to the physician, yet "without changing the arrangement which has made it so popular with the student."

One of the commendable additions to the later editions is the section on mental diseases, and one on skin diseases, these two subjects occupying more than 100 of the more than 600 pages in the volume.

The subjects treated in this work are taken up in the following order: Fevers, general treatment of, continued, periodic, and eruptive; diseases of the mouth, stomach, intestinal canal; intestinal parasites; diseases of the peritoneum, biliary passages, liver, kidneys, blood; acute general diseases; diseases of the respiratory system, nasal passages, pharynx, larynx, bronchial tubes, lungs, pluera, circulatory system, nervous system, cerebral membranes, cerebrum, spinal cord, nerves; general or nutritional diseases; diseases of the skin.

Under these several heads the author considers the individual diseases as to: Synonyms, definition, etiology, morbid anatomy, symptoms, duration, complications, sequelæ, diagnosis, prognosis and treatment. The symptoms and treatment receive especial attention, and we ought to note that in the numerous prescriptions suggested under the latter head, the dosage is given in both systems.

This compend contains an excellent index, is tastily bound, and of handy size—a mine of information in small compass—and we cannot too highly recommend it to the medical student and practitioner, though our commendation can not be greater than has been the favorable estimate of the work, by our own professors, in the lecture-room.

ATHLETICS.

Rush opened her football season by defeating Northwestern University's team, at Evanston, October 7, the score being 6 to 0. Our boys had not been long in practice, and the teams were rather evenly matched. The first half ended without a score. Both teams found it well-nigh impossible to advance the ball, the linee holding well. Most of the gains by Rush were around the ends. Northwestern gained almost nothing on end plays, and confined herself to bucking the line. Even then she was able to carry the ball the necessary five yards only four times. Rush's touchdown was made about three minutes after the second half opened, and was the result of a run of forty-five yards after catching a punt. The Rush line-up was as follows:

Shraeder	R. E.
Shillow	R. T.
Moore, Nicholson	R. G.
Baumgarten	C.
Gardner, Bland	L. G.
Farr	L. T.
Harris	L. E.
McKirahan	Q. B.
Schwendener	R. H. B.
Lamping, Agnes,	L. H. B.
Tobin	F. B.

On the 21st, Rush was defeated at Iowa City, Iowa, by the University of Iowa team, in a score of 17 to 0. The game went our way the first fifteen minutes, but the lack of condition of our team then began to tell against Iowa's strong team,

The Corpuscle.

Rush Medical College, Chicago, Ill.

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PHYSICIANS AS EDUCATORS OF THE PEOPLE.*

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You will hear much said about the work of the Physician. He will be spoken of as the one who stands at the portal of life and gives the child into the anxious mother's arms; the one who in the darkest hour of affliction, steadfast and firm, quick in thought and trained in action, fights the grim battle of life and death, the one who when hope is past, stands tenderly by to smooth the downward path which leads to outer darkness. This is the work of the physician in his relation to the individual, but there is a higher plane of work,—the duty of the physician to humanity and posterity. It is in this relation that the highest duty of the physician lies, and it is this work that I wish to speak of in the short time that has been allotted to me.

The astonishing age in which we live should make the modern physician essentially a scientific man. His is the study of man "fearfully and wonderfully made". He sees that disease is but a step from health, and but a step to the grave. Science regenerates the world and elevates man above the pettiness of every day existence. The geologist, diving to the very depths of the earth and studying the various strata composing it, has surely a grander idea of the formation of the world and the eternal forces that have produced it than ever philosopher of old. The physiologist, studying the wonders of the human form, sees more beauty in the body of man than the greatest Greecian sculptors ever dreamed of. The chemis subjecting matter to the test of the crucible, sees forms crystalized into being by the eternal chemistry of God.

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Spectrum analysis promises to reveal things as yet unrecognizable while the Anatomist and Pathologist, microscope in hand wait upon nature at her very fountain head, and gaze as it were, into formative creation. The unchanging law of progress in human society is written over all things. From a state of utter barbarism, from a condition of wretchedness and brutishness, the cave dwellers of the past, have developed into the man of the present. We trace the long and arduous path which he has toiled picking up here and there a mental and moral attribute, and here and there casting aside some brutish instinct, as evolutionists, we know the same natural laws are in existence today; the same forces are in action which have wrought the wonderful development of the past.

The principal element in the promotion of human happiness and well being, as well as the elevation of the race to a higher and better plane, consists in the harmonious and symmetrical development of all the powers of mans being. Such an evolution as will give him complete self possession and enable him to adjust himself to the many and complicated conditions of his environment;- and who so well as the physician is able to teach these principles. The physician occupies a position that can be attained by no other class or profession. By his training and wide knowledge of the inherited and acquired tendencies of mankind. Who knows the consequence of doubtful conduct; who knows the result of physical sins committed in ignorance. He gives the first care to every living child, he next to its parents, looks after its health and well being. Does he in this regard, perform his whole duty if he fails to give such advice to the youth of his clientage as will best fit them for lives of usefulness. There comes a time in the life of every young person when with passion of adult age, there is only the wisdom and experience of a child. How often is he in a position to give counsel and advice as will save worlds of unhappiness and misery. This is a brand new world to every human being that enters upon it. Every new stage of existence is untried and the sun of the present dispels the mist for only a little way, ond the physician who is the companion of man from the first inspiration that ushers him into independent existence to the expiratory gasp that closes his earthly career, who soothe his pains, assuages his griefs, and inspires him with hope and courage in his darkest hours, should exert over him an immense influence.

Beginning with our public school system, I can see many defects that should be corrected, The great increase in recent years of the number of subjects included in our common and high school courses, compel pupils to take too many studies at the same time, thereby creating a tendency to superficial and imperfect work. The high pressure methods to which our children are subjected from the time they enter until they leave school, have a very deletarious influence on healthy physical development, and is responsible for a large part of the nervous irritation, neurasthenia, and mental instability which unfortunately have become such a prominent characteristic of the American people. Such a course of study, combined with faulty dietetic habits, attendence at balls and parties, participation in all sorts of excitements by mere children, is rapidly making us a nation of dyspeptics and semi invalids.

Many children are injured in constitution and the seeds of diseases are planted by bad school sanitation and management. Recent authorities claim that 60 per cent. of our school children are to some extent near sighted. This is an evil that should be at once corrected and can be best accomplished by having assigned to each school a physician who should have charge of the general hygiene of the building, giving proper attention to the manner in which the light falls upon the pupils book, the use the proper print attention to hours of study, in short his duties should be the protection of scholars against the dangers of school life.

The care of the body has been up to comparatively recent years, strangely neglected in the public schools of this country The overloading of the brain of the young with a quantity of matter difficult to digest, and in many instances when assimulated of little use in after life, has been the popular method of training in the past and it has surely helped to develop many of the nervous diseases to which this generation is so peculiarly susceptible. As a nation I think we have under estimated the value of physical training in the direction of increasing the capacity for intellectual work. But it is also pleasing to note that the American people are beginning to see the pernicious effects of developing the mind at the expense of the body.

The more rational mode of education appears to me to be that of training body and mind so that they advance as far as possible at equal rate. For instance if a child is of a weak constitution but possessed of unusual mental capacity, it should be the aim of his parents and teachers to strengthen his physical powers, and let his mind take care of itself until that object is accomplished; on the other hand, if the reverse is the case to adopt contrary methods. Individuals should be studied separately and shildren should not be bunched together in a body and put through the same course without regard to their different temperaments and constitutions. It is in the morning of youth that the future man is moulded. Thus it is essential during youth's development, and when the mind is best capable of being guided for good or evil, that we shape their destiny and select their part in the great drama of life If they are not imbued with the true spirit of industry and morality, inspired with lofty aspirations and ambitions you may as well write their prospects of success upon running waters. It is said, “cultivate the physical exclusively and you have an enthusiast or a maniac; the intellectual only, and you have a diseased oddity, it may be a monster. It is only by training all three to-gether that the complete man can be formed.

We should teach mothers that great care should be exercised with girls at the time of puberty. Home study imposed by most schools at the critical period of their lives should be greatly restricted and in all cases confined to those who are physically able to work without injury.

It was Socrates who thanked the Gods daily that he was a human being, not a beast; a man, not a woman; a Greek, not a barbarian. From the cradle to puberty woman seems to be on equal terms with man, but from that moment, through the whole period of actual life, her existence is one of prolonged suffering. No practitionar of healing art will fail to give this a melancholy seconding. The physician knows, as no ond else can know, that suffering and woman are well nigh synonemous terms, consequently, it is our duty to teach parents that at puberty, from the great liability to circulatory disturbances, caused by the physical and mental strain of education by the conventionalities of society, which may require injurious changes in dress and personal habits, associations which would unduly excite emotions, may leave impressions which can never be effaced, malnutrition, psychoses, sterelity and functional disorders are possible results, and may make the woman a helpless invalid.

Parents must be taught to thoroughly understand that if they desire their children to attain the highest and noblest manhood and womanhood, they must instil into their minds correct principles and true ideals of life. They must furnish them with healthful and attractive home surroundings and conditions favorable for a symetrical and complete development. The home should be made the most attractive place in all the world. Who so well as the physician can impart to them a knowledge of the laws of health, the evils of many social and moral questions, who every day witness the effects of their practical application on all classes of society.

According to prevailing ideas, the higher education and civilization strongly tend to check and pervert the development of woman, to cause numberous weaknesses, to increase the burdens and dangers of maternity and lessen the vigor of the offspring. We are told that the republic is in danger from the deterioration of our women. Sufficient facts are not known upon which to base valid conclusions. The pessimistic forebodings, however, have arisen and gained headway, rather upon assertions than upon fact. To make the deterioration of women, and through this the enfeeblement of the race, a price which must be paid for the higher education and civilization would be to reverse the law of evolution and to put in its place the survival of the unfittest.

We hear a great deal of talk nowadays about the restricted sphere of woman, the rights of woman, the little power she has, compared with what she ought to have, woman suffrage, etc. I can not help but think that they would do well, first, to discharge the duties pertaining to the rights which they already have, before demanding so loudly a more extended sphere. Instead of cultivating her mind and dedicating peaceful days to the love and welfare of her children, she arrays herself in a bewildering, captivating maze of tucks and frills; is perhaps no better educated than her grandmother, and if she consents to be bored with children at all, leaves them to the nurse and scurries away to the nearest "convocation" to ventilate her intuitions concerning woman suffrage and flounder in the measureless sea of "reform. In the scramble for their own rights let them not forget the rights of their own children, which they, of all others, should be vigilant in preserving.

Again, as physicians it is our duty to prevent, as far as possible the number of unborn infants. We have all been taught to regard human life as one of the most sacred thinns in the world. But right here in the shadow of our churches tens of thousands of human beings are sacrificed to the Moloch of human depravity and the lives of thousands of mothers are sacrificed too, and when the mother's life is not lost, she is far from being the pure minded and noble hearted woman she was before fashion, indolence, or whatever base nature impelled her to do it.

But, notwithstanding our boasted Christianity this offense is not confined to the so-called criminal classes, but has involved all classes of society, and, unlike other crimes against God and society, this crime seems to grow rather than diminish with increasing intelligence and refinement. Where uncivilized man has slain thousands, in this civilized land the abortionist has slain hundreds of thousands. The most discouraging aspect of the crime is that it is much more prevalent among the cultured and religious than among the poor and ignorant, and that it has already told disastrously upon the natural increase of the best class of society. The bulk of our increase is from the poorer classes and from the foreign population. It is a shame that our educated American women must be outdone in this highest of all moral duties by their less favored sisters.

As physicians we can not dodge our responsibilities in this matter. Our duty is to show people who seek advice in such matters, that from the moment of conception the subject of it is just as much a human being as it ever will be, that it has a divine as well as a legal right to live. We must be missionaries, devoted to the cause, until this heathenish darkness is dispelled. Above all, let us do our best to educate the head and heart of that fairest and most lovely of God's creatures, the American girl, so that she may avoid this soul destroying crime against her own flesh and blood.

And about the question of temperance, are we doing our whole duty, or any considerable part thereof? We see every day evidences of the baneful effect of the habitual use of alcohol. Most of the inherited diseases and nearly all the poverty and crime result directly from the use of alcohol. Our jails poorhouses, hospitals and insane asylums are all filled with the victims of this inordinate thirst for alcohol. Alcohol, in no matter how small quantities it is taken, is not only unnecessary, but it is detrimental to the permanent enjoyment of health. Our duty in regard to it is to teach the young by precept, example and warning, so that in the generation to come there would be no successors to the loathsome drunkard of this generation. The use of tobacco, too, might to a certain extent be prevented by timely warning. As physicians how often do we see the shattered wrecks of once powerful bodies, and splendid intellects, and nervous systems whose possessors, instead of attaining a high and honorable position in the world and helping to elevate humanity to a higher plane, fill untimely and nameless graves, brought low by some of the overmastering vices.

DIFFERENTIATION BETWEEN LUSTGARTEN'S BACILLUS, THE BACILLUS OF TUBERCULOSIS AND THE SMEGMA BACILLUS.

By O. A. Dahms, '00

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No great amount of work of a successful character has been done with the bacillus discovered by Lustgarten in 1884, because of the almost universal inability to demonstrate its presence in syphilitic lesions or secretions. Therefore it has not been possible to devise satisfactory differential staining processes, and we possess but one useful method to distinguish the bacillus of Lustgarten from the smegma bacillus. While the process employed by Lustgarten himself, and the one recommended soon afterward by DeGiacomi, are said to stain the bacillus of Lustgarten very satisfactorily, they unfortunately impart color equally well to the bacillus of smegma.

The following processes devised by the celebrated syphilologist Doutrelepont in 1887, was shown two years after its discovery to be a serviceable differential method: The cover-glass preparations are fixed and stained in an aqueous solution of gentian violet. They are then decolorized in nitric acid (1:15), next in 60 per cent. alcohol, and finally in absolute alcohol. Lewy first showed that smegma bacilli do not stain by this method.

To differentiate between tubercle bacilli and smegma bacilli, the following procedure was advocated by Bunge and Trantenrath in 1896:

1. Place cover-glass preparations without previous heating into absolute alcohol for three hours.
2. Treat with 3 per cent. chromium solution, fifteen minutes.
3. Stain with carbol cuchsin.
4. Treat with dilute sulphurous acid for two to three minutes.
5. Treat with a concantrated alcoholic solution of methylene blue, five minutes.

Tubercle bacilli retain the red, smegma bacilli assume the blue color. This method is reliable but slow.

Dorset's more rapid and equally reliable method, published for the first time in February, 1899, consists of these stages:

1. Fix cover-glass preparations in the usual way.
2. Immerse for five minutes in a cold 80 per cent. sol. of Sudan iii, in alcohol.
3. Wash thoroughly in 70 per cent. alcohol for five minutes Smegma bacilli remain unstained.

Attention to the following facts may frequently be of service in attempts at differential staining:

1. Smegma bacilli do not occur in internal lesions.
2. Lustgarten's bacilli are not known to have ever occurred in sputum, although if syphilitic lesions exist in the respiratory passages or mouth, and these lesions contain Lustgarten's bacilli, it must be admitted that the mixture of the latter with the sputum is not possible.
3. As first stated by Fraenkel, sputum containing a large proportion of myelin and fatty acids is apt to contain smegma bacilli, but these are not usually numerous. In other varieties of sputum their presence is exceedingly uncommon, and the possibility of finding smegma bacilli can be reduced to a minimum by a thorough brushing of the teeth, washing out of the mouth, and gargling of the throat, preferably with a solution containing a small amount of alcohol or sodium bicarbonate previous to the expectoration of the sputum to be examined. In fact it may be regarded as doubtful whether smegma bacilli ever occur under these circumstances in sputum which does not possess the qualities mentioned.
4. Smegma bacilli do not occur in urine obtained by catheterization after thoroughly cleansing the urethral orifice.
5. In hundreds of preparations examined it was never possible to find a single smegma bacillus showing in a typic way the sharp curve near one extremity which is so frequentlyobserved in tubercle bacilli.

What a world of good the prefession might accomplish by teaching people how to live, and by showing them the dangers of hereditary diseases, which are annually increasing. A large part of the inherited suffering resulting from ill assorted marriages, from offenses against chastity, and diseases resulting therefrom are preventable and lie heavy at our doors because they are not prevented. We know by the laws of heredity that ancestors transmit to their offspring variable dispositions, which mansfest themselves in the mental and moral as well as the physical nature of the offspring. As we take a retrospective view of ancestral inheritances, a sympathetic cord is touched in our nature, for a most melancholy vision is presented to us; diseased bodies, dwarfed and deformed; weak minds; souls so black that they feast in the darkness on the very dregs of perdition. What a Vision! and do we call these men? Men, who were intended by the architect of the universe to be the crowning piece of his handiwork! What a fearful manifestation of penalties for broken laws.

After beholding the sad vision of the depravity of man, and also having endeavored to learn the causes that lead to such depravity and misery, I find that the hope of the future will depend upon these a clear fountain head or good inheritance, a congenial environment, and the proper use of our functions. It will be by a judicious use of our functions—mental, moral and physical—aided by a wise selection of environment, and the exercise of "the law of natural selection" that the problem of the "survival of the fittest" must be solved, the inertia of the evolution of the [species continued.

If history teaches us one thing above another it is that the perfection of the body will produce the highest mental vigor; that healthful thought must come from healthful brain, and that healthy brain must be nourished by healthy blood. In the degraded and criminal classes it is that taught the moral nature is at fault. But from the physical view of the physician, we know that over many a cradle, there hangs like a pall a curse of heredity that shall grow and strengthen with years. We know that a criminal will beget criminals; we approach these questions with no sentimentalism, inherited or otherwise. We know that the conformation must be corrected if possible and the enviroument improved that criminals should not be permitted to produce criminals. While we should have a sympathy that will vivrate in unison with all humanity, we should also have the firmness of character to enact such laws, and rigidly enforce them, as will so far as possible, remove the causes that generate crime and misery.

As we have sanitary laws to protect the health, so we should have hereditary laws to protect posterity. Where crime and disease are most prevalent, it is observed that there is the least respect for the laws of marriage, and the greatest disregard for the rules of consanguinity. At the risk of being censured, I will venture the opinion that we should put a gulf between conginital criminals and the rest of the world, by means of compulsory celibacy. The people must be brought to recognize the fact that the marriage of the diseased and weakly must be restricted, that men and women have no right to bring into the world children to either suffer and die prematurely or to drag out a miserable existence and transmit again to their children the fatal inheritance. It is a pitiful thing to say, but it is nevertheless true, that in this Nineteenth Century more thought and care are shown in the breeding of animals than in the production of the human race.

In all nature there are no evils without a remedy, if we but wisely seek it. So it is with the evils of heredity. "Nature furnishes poison for the assassin; she also furnishes antidotes for the physician " As we deal with disease so should we deal with crime. As conscientious physicians, we should endeavor to remove the conditions which tend to undermine the health and as conscientious sociologists we should point out the conditions which tend to undermine the moral and social nature. If in this sacred labratory of wedlock, we combine immorality, insanity, and disease. We must remember that the laws of nature are never false. If the resulting compound is not as we would have it, it is because the proper ingredients were not used, and we must also remember that the only remedy is to combine pure chemicals in proper proportions.

Turning for a moment to ourselves, we are in the habit of calling our profession an honorable one, and so it is; however, there is a wide, not often expressed, but deeply felt sentiment among the people that the doctor requires of his patient, what liberty does of the patriot, constant watching.

The clergyman is called to comfort in that solemn hour when worlds are to be exchanged. Fear and gratitude of the universal worshiping heart have given him first place among men. The doctor is hastily summoned into the thickening shadows of the chamber of sickness. For his skill and power and final success in warding off the king of terrors from that loved one.

While there are members of the clergy who have proved recreant to their sacred trust, and while there are doctors who give sham and falsehood for the gold of their confiding patients, still as long as men believe that earth is not all—so long as love and friendship continue to bind their golden cords about the companions of time to keep them here, so long because the nature of his work, will the man of God ministeridg at the alter, or the man of medicine ministering at the bed of the suffering, continue to receive the reverence and admiration of suffering mortal man.

The character of the patient and the nature of his business determine the character of the doctor. As the people rise and fall in moral tone—so will the doctor. The medical thermometer indicates the moral temperature of the people.

I have stated the historic and philosophic elements out of which is formed the doctors character. You have no right to expect the creature to be better than the Creator, or the doctor to be better than his patients.

But my friends, I have conceded enough to explain the unfortunate reputation of the physician. Candor requires me to go no further. In this favoring presence or anywhere, I lay down this proposition, the philosophy of which I may not pause to state, though apparently not deducted from the principals of philosophy, but the truth of which I do not hesitate to affirm, "The medical profession is better than its clientage.'

In great moral issues involving individual rights they have been pioneers far in advance in time and tone even of the church, more than bishop or minister have these medical champions come in vital contact with men through the working days of all the year, and so wrought out these principles which give that rich meaning to life in these closing hours of the Nineteenth Century.

It is true that the medical profession to live must court and have a paying constituency. But the charm to high born souls is that the path to true distinction is not in the lowlands of deceit, but runs along the mental heights into the pure air of truth under the beckoning skies of loftiest purpose. The mission of the doctor finished it has only begun. Cruel, titanic forces are today manifesting themselves in the medical and social world, sufficient to crush the individual under former conditions. In some way, I know not how, we shall not perish. Time is preparing the leaders in this irrepresssible conflict to take place in the near future, and I can tell you who they are. Those men and women too, whose intellects are trained to distinguish between the finest shades of right and wrong, and to repel the wrong with a prompt response and speed of lightning, and who with brains thus equipped inspired and warned with unselfish zeal, shall utilize the dominant, now threatening physical and spiritual forces of earth to the best development, the glory and happiness of mankind. He who can teach the lesson of a noble life or with humble consciousness of all its weaknesses and imperfections strive to approximate its deal as best he may, achieves the only great reqard within his grasp. Fame and fortune are better sought in other fields; its honest gains are paltry recompense for unceasing toil, and great names in history are still carved with the sword, not with the surgeon's knife.

The medical art, when inspired by sympathy and guided by a full sense of its serious responsibilities in the relief of suffering and in the preservation of human life, yields precedence in the sacredness of its mission only to the ministration of the church, but practiced as a simple business occupation, and degenerated to a vulgar scramble for the gain it brings is but a carrion trade, and they who practice it are no longer ministers of mercy, but prowlers in the shadow of the tomb, who find their profit in disease and death and fatten on decay.

36 Washington Street.

HEN'S EGGS IN INFANT FEEDING.*

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No apology is necessary for the subject of substitute feeding of sucklings. If any one should question the importance we have merely to point to the mortality statistics in bottle and breast-fed babies. The host of substitute foods and preparations on the market is sufficient evidence of their inutility and, even though the clinic evidence were wanting, our knowledge of their composition and the physiologic requirements of infant digestion would lead us to discard a great majority. After experimental excursions along other lines, the tendency in America is to accept the milk of cows, goats and asses as the most available substitute, containing all the elements of infant nutrition in nearly normal proportions. Cow's milk has become more popular since the elaboration of the hygienic dairy system and the aseptic precautions in the care of the milk. Especially is milk popularized in localities where laboratories (such as the Walker-Gordon) are established for the modification of the milk or the regulation of the percentages of its components. The approximate analysis of mother's milk has been rendered easy by the Babcock method and later improved, I think, by Leffmann and Beam, and these facilities for modification have led us back to the cow's milk not only for infants deprived of the breast but also for sucklings when the maternal supply shows marked deficiency in some important constituent.

With all due appreciation for our advance in hygienic dairies and milk laboratories, I, with many others, have frequently found cases in which no modification of cow's milk whatever met the requirements of the case. The troublesome cow casein, like Banquo's ghost, would not down until so reduced in percentage that innutrition from absence of albuminoids resulted.

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*This paper embodies one presented before the Pediatric Section of the XII International Congress, at Moscow August, 1897.

It has not been difficult to prepare synthetically an emulsion which contained all the elements of nutrition found in mother's milk. The greatest difficulty is found in the inability of the infant to digest the albuminoid containing so large a percentage of cow casein.

The employment of egg albumin to supply the necessary proteid in infant food is by no means a new idea nor original with the writer, but he believes too little attention has been given to egg as a substitute for the indigestible proteid of cow's milk. The food value of hen's egg seems to have been appreciated for many centuries and in the Chronicles of Froissart dried eggs powdered and rammed in barrels are mentioned among the stores of provisions laid up by the king of France for the invasion of England in 1386.

Physiologists are in general agreed as to their food value, and the desiccated egg of commerce is now a well-known staple. Long before the writer began his observations in this line of feeding, many contributions were made to the literature on the subject. In many cases, however, the egg albumin mixed with water was resorted to only in cases of extreme gastro-intestinal intolerance of other forms of nourishment and was discontinued upon the subsidence of acute symptoms. By others, standard preparations containing egg were recommended and in some instances patented as the best food for babies. The incompleteness of the food in the former class of cases and the inadaptability of the arbitrary formula to the varying requirements of different patients in the latter account for the limited adoption of this article of diet.

In discussing this subject I have met with the following objections to the use of the egg: 1, scarcity; 2, unsoundness or instability; 3, coagulability, and 4, expense.

No one will deny that the geographic distribution of available ovipara is more wide-spread than that of mammalia whose milk is suitable for infants. As to unsoundness, does any one suspect that the newly laid egg harbors the infection which is so frequently found in fresh milk? Handle the egg with but half the hygienic precautions which now attend the manipulation of milk and it will prove much superior in its soundness and freedom from germs of infection and decomposition.

To the objection to the egg because of its ready coagulability at a somewhat low temperature, I reply that high temperature is not more essential in the use of aseptic egg in baby food than in that of sterile milk. It has been sufficiently demonstrated, I believe, that when the milk supply is properly guarded by sanitary precautions sterilization or even pasteurization is worse than useless, because it lessens the food value. But for those who still prefer pasteurization, I will state that a solution of egg white in milk, properly strained and alkalinized can be pasteurized without coagulation.

The objection as to expense is wholly without foundation in fact. I will not take the time to prove that a given quantity of assimilable proteids suitable to infant digestion and nutrition may be obtained with greater economy from eggs than from milk. It is readily susceptible of demonstration. Furthermore, as to the relative expense of securing immunity from contact infection in eggs and milk, the showing is overwhelming in favor of the former.

Let it not be understood from the foregoing that I prefer egg to milk as a food in its entirety, or that I would drive the the cows away from the babies with a flock of hens. I believe a good nutrition may be maintained in nurslings by a proper combination of ingredients, such as olive oil, grape sugar and egg white, with the requisite proportions of sodic, potassic and phosphatic salts in aqueous solution; or that some of these essentials may be obtained from starch, from cereals by a proper action upon their starch and a proper solution of their gluten and salts; or from meats rich in proteids properly abstracted. Many of these efforts at substitute feeding—peptonization, pancreatization and partial predigestion have proved successful in certain especial cases. Still it is not my purpose to inveigh against the use of milk. On the contrary, I consider cow's milk as the most accessible source of most of the constituents of baby food and believe it should be made the basis from which by proper modification we may prepare an emulsion to meet the requirments of any particular case. It is to the use of the easily assimilated albumin obtained from the hen's egg in place of the indidestible cow casein that I desire especially to call attention. As I stated above, we have in the leading cities of America, as Boston, New York, Chicago, Montreal, Philadelphia, St. Louis, Baltimore, etc., adopted the practice, inaugurated largely through the energy of Professor Rotch of Boston, of using the milk laboratory, through which we order by definite prescription—as from a pharmacy — the exact amount of food and the percentage of ingredients required for each nursling.

In visiting the Continent, en route to the International Congress at Moscow, I was disappointed in not meeting with these milk laboratories. The nearest approach to them that I saw were the Radlitz Dampf Molkerei in Prague; Professor Baginski's efforts in his Molkerei in Berlin; the numbered and labeled milk bottles in Professor Heupner's wards at the Charité and Professor Monti's efforts at modification at the Vienna Molkerei. But in none of these, nor elsewhere in Europe, did I see our new American practice of prescribing the exact percentage of leading constituents for each case. To be more explicit, we write a prescription as follows:

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Fat	3 per cent.
Milk sugar	7 "
Albuminoids	1.5 "
Mineral matter	.15 "
Total solids	11.65 "
Water ad	100 "
Number of feedings	8
Amount at feeding	oz iiss
Infant's age	3 mos.
Infant's weight	13 lbs.
Alkalinity	5 per cent.
Heat at	160 F.
Ordered for baby	

Signature................M. D.

Date..............

This is sent to the laboratory and filled daily until from the varying needs of the case, a change is ordered by the physician as to the percentage of some ingredient. A few of us have ordered, in some instances, well-cooked cereals in the form of jellies of starch, oatmeal, barley, etc., to be incorporated in the emulsion. Having for a number of years experimented with egg combination in infant feeding, I encouraged the advent of the milk laboratory as the best means of carrying out the idea of substituting egg white for the indigestible curds of milk casein. My case records both in hospital and private practice afford increasing encouragement and I find objectionable features raised by some observers, namely, flatulency and bad odor of stools, subside when the quantity of egg is modified to meet the requirements of the particular case.

Concerning the subject announced on the program of the congress, and only known to me on my arrival in Moscow, I will state I never substitute artificial for natural feeding without some substantial reason for so doing.

As to the infant, a loss of weight, even failure to gain for a week, or any evidence of indigestion or malnutrition calls for an immediate examination of the breast milk, as to quality and quantity, which usually reveals the cause of the disturbance. In hospital practice, as in the maturnity wards of the Presbyterian Hospital of Chicago, the breast milk is analyzed twice each week in all cases and the result entered with the daily records of each infant's growth and nutrition. Should there be any marked evidence of disturbed lactation, substitute feeding is resorted to temporarily until the breast milk is improved by special care as to the hygene and therapy. In the event of failure, the infant is kept permanently on the artificial combination best suited to its requirements.

The statistics from my records are still favorable to natural feeding. However, we must admit some advantages of the artificial methods, such as uniformity of food; regularity of supply, the facility with which changes in diet may be made, both as to quality and quantity, in gross or in detail, and the exemption from disturbances—emotional, temperamental physiologic and psychologic. This, with our increase in knowledge of infantile physiology and hygiene, bids fair in the near future to raise artificial feeding more nearly to a par with natural feeding.—*Jour. A. M. A.*

The Corpuscle

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CHAS. J. WHALEN, M. D., LL. B., Alumni Editor.

Communications relative to advertisements and subscriptions ($1.00 yearly to undergraduates) should be addressed and remittances made by money order, draft or registered letter, to W. Murray, Business Manager, Rush Medical College. The CORPUSCLE will be glad to receive news, etc., concerning, or of interest to, alumni.

MEMBERSHIP IN THE ALUMNI ASSOCIATION OF RUSH MEDICAL COLLEGE is obtainable at any time by graduates of the College, providing they are in good standing in the profession, and shall pay the annual dues, $1.50. This fee includes a subscription to The CORPUSCLE for the current year. This journal is the official organ of the Association.

Dues and all communications relating to the Association should be sent to
JOHN EDWIN RHODES, M. D., Sec'y. and Treas., 34 Washington St., Chicago.

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ANNOUNCEMENT—

With this issue of the CORPUSCLE Mr. Norman W. Judd retires from the editor-in-chief's chair. Mr. Judd has conducted this publication for the past year and has worked earnestly and faithfully to make the CORPUSCLE a success. Owing to duties in a larger field he resigned at the last meeting of the board, and Mr. Lee Masten Francis was elected to fill the vacancy.

⁂

It is the earnest desire of the CORPUSCLE Board to bring Rush's only publication into closer touch with the undergraduate body. It is our wish to publish everything pertinent to the welfare of Rush Medical College and the interest of the student as well as graduates.

To do this it means an effort on the part of editor and also on the part of the students. There are two mail boxes, in which items may be put, one placed in the Clinical building and the other in the Library building—and it is the earnest wish of the editors, that they will be used.

⁂

The football team under the new management, has been a credit to Rush and should receive the hearty support of Rush men. The Senior Class acquitted itself nobly—an example which the other classes would do well to follow.

⁂

EDITORIAL VACANCY

After the December issue, there will be two vacancies on the CORPUSCLE Board. According to the Constitution appointments are made on the basis of literary merit, so notice is hereby given to those students who wish to compete for a place on the staff, that all articles submitted in competion must be in the hands of the editors not later than the first week in December. Further information will be furnished by any member of the board.

⁂

The recent delays in publication of the CORPUSCLE have been brought about by unavoidable combination of circumstances, for which no one is to blame. After this issue the Corpuscle will do its best to appear on scheduled time.

⁂

We are glad to note that many of the Rush students are wise enough to treat "Dowie and Devils" with the contempt both those individuals merit.

⁂

THE DECEMBER ISSUE.

In the December issue of the CORPSCLE, which will appear during the first week in December, we shall publish a list of all Rush students, with home address, city address class, and section.

FOOTBALL.

The policy outlined and determined upon by the management this year is markeely a conservative one. No needless expenditures have been contracted and a successful season is nearly assured. Considerable money is required for the support and maintainance of a foot ball team and to this end subscriptions have been started among faculty and students. For those who have responded so generously many thanks are extended and it is hoped that all not yet approached will not fail to contribute his share.

STATEMENT BY PROF. BEVAN.

As chairman of the faculty Com. on Athletes I cancelled the game with P. & S. which was scheduled for Nov. 17th This action was taken in the interest of clean college athletics. To give or receive directly or indirectly compensation for playing on a foot-ball team is professionalis of a character which could not be countenanced by the Rush authorities. It is to be hoped that this action will be productive of good and that next year no reason will exist to prevent the annual P. & S. & Rush game

Arthur Dean Bevan.

IOWA—RUSH GAME.

More might be said concerning the Iowa game than was contained in the brief account in our last issue. Iowa insisted on long halves thirty and twenty five minutes each for which our boys in their few weeks of practice were entirely unprepared. Added to the fact was that of the warm day, the weather being hot and oppressive. From the kick off by Iowa, Rush rapidly forced the ball to their ten yard line there to lose it on a mistaken signal. Iowa punted out of danger to the middle of the field when Rush soon gained possession this time forcing the ball to Iowa from yard line, only to lose it once more on a fumble. The fast pace began to tell and soon Moore and Tobin were forced to quit their positions being filled by Keenen and Eignus. A goal from the field by Iowa resulted after twenty five minutes of play. Score 5 to 0 end of first half. In the second half Rush held her own for fifteen minutes then condition rapidly told and allowed Iowa's speedy men to score twice. Final score 17 to 0. Having been in training since Aug.

22., Iowa's team has worked up wonderful endurance and so as a result of this and Knipe's coaching have prevented their goal line from being crossed so far this year.

The impression that the Rush team made upon ther trip to Iowa cannot be better expressed than by printing a clipping from an Iowa paper:

THE RUSH TEAM.

Admiration is our only feeling for the members of the Rush team. They played a strong game once early in the play, forcing the ball dangerously near our goal line. The men are fine fellows, every one of them. Iowa is proud that Schroeder who did such service at right end, once played on an Iowa team. Iowa is also proud that a sister college in Iowa is represented on the Rush team by so masterful a player as Harris. As for the other men, their work in the game was of such a quality that the institutions where they learned the game may well be proud of them. The Rush boys have made friends here, and they will be welcomed when they return again.

UNIVERSITY OF WISCONSIN – RUSH.

Next to the game at Evanston with Northwestern, the best showing Rush has made this year was on Oct 28th, when at Madison they held the Wisconsin team down to a single score in each half. With the exception of Cochems at right and the same team lined up at the start as against Yale at New Haven the week previous. In this game Rush showed improved condition and made good gains when in position of the ball, and put up a good defense against Wisconsin line bucking. No gain could be made around our lads and Rush stubbornly contested every inch of grouud. The final score of 11 to 0 is in strong contrast with our previous scores against the same team in past years. In '96, 52 to 0; in '97, 28 to 0; in '98, 42 to 0.

ENGLEWOOD HIGH SCHOOL – RUSH.

On Nov. 1st Rush lined up for two fifteen minute halves against the Englewood High School team. Only eleven Rush men having reported for practice, necessitated playing several substitutes and a general shifting of the regulars. Then circumstances added to the extreme inclemency of the weather accounted for the low score, as much fumbling and missing of signals resulted. The Englewood team has a strong line and put up a good defense, Rush managing to keep from fumbling long enough to score once. No goal was kicked. Final score was 5 to 0.

NOTRE DAME—RUSH.

Confronted by a strong aggregation of players, Rush was defeated at Notre Dame Saturday Nov. 4th, by a score of 17 to 0. Our team was weakened by the loss of Harris at end, who was called Friday previous to his home in Iowa, and also by Baumgartner whose absence from the center position is always keenly felt. Two twenty minute halves were played, the first touchdown being made but three minutes before the close of the first half, Rush being unable to withstand the constant and steady battering of the Notre Dame veterans.

In the second half Notre Dame kicked a pretty goal from the field on the 30 yard line and when but fifteen seconds of play remained, secured their second touchdown. The day was clear but quite cold, considerable sun being on the ground. The management has naught but praise for the courteous treatment at the hands of their manager, Frank Hening and the college at large.

MISCELLANY.

YON YONSON IN DENVER.

Ay coom en on das Burlington
  Das vas snap-lightnin' tren!
Ay tenk de yourney yust begun
  Ven "Too-oo-out!" and har Ay bane!

Das pooty quick yo bat mae life.
  But not a yolt or yar—
Ven Ay got back Ay tol' mae vife
  Das mos' so fast lak her.

Ay coom dar saven yar ago
  Mat em-gran'tren; das bum!
Ay tank das railroads yust so slow
  Lak judgment day vas coom.

En ven das lightnin' tren to-day
  Yoom oop into da air
En fly yust lak a baard avay.
  Ay tenk Ay shed mae hair.

Ay got sax dollar money en
  Mae pocket; das all right;
En you yust bat mae life dar bane
  A hot tam har to-night.

COLLEGE AND ALUMNI NOTES.

Prof. James B. Herrick is in Europe.

Prof. Nicholas Senn just returned from a hunting trip.

W. H. Sheldon of the senior class returned to Wisconsin to play in the alumni game.

The foot-ball management announces that the Rush-Physicians and Surgeons game has been cancelled.

Prof. Ingalls has announced the final examination in chest, throat and nose for Nov. 29.

F. H. Stayton of the junior class made a business trip to Iowa during the last week in October.

Dr. C. W. Ottley of John Hopkins University lectures before the Y. M. C. A. Oct. 25, on "The Student Missionary Volunteer Movement."

Dr. E. J. Senn read the original article on "General Aenesthena" from Prof. Senn's new book, before the senior class.

Dr Tice '92, former house surgeon at Dunning, has gone to Vienna to study in the hospitals. He was accompanied by Dr. Ryan '92.

Dr. George Thompson '99 went back to the University of Wisconsin to play in the alumni game.

The bulletin boards for the sophomore, junior and senior classes, have been moved to the third floor of the Clinical building. Each class has a separate board, a much needed improvement.

Mr. P. B. Brockway of the senior class was called to the death bed of his mother during the last week in October. He is with us again after a week's absence.

The article on Infant Feeding by Prof. A. C. Cotton is of such great practical interest that we take pleasure in reprinting it.

There are many juniors who think that courses scheduled should be given, for example, the first four weeks in bandaging gave section "g" but one exercise. More attention should be given to these important courses.

Section E of the junior class is reciting in the bone room. It has one advantage as a recitation hall—there is always plenty of air—even if it is not of the furnace variety.

The father of G. R. Fethean, 1902, has been spending a few days with his son.

Mrs. Helton of Atwood, Ill., visited her son, A. J. Helton of the sophomore class, last week.

Prof. Senn showed 35 cases at one of his Thursday afternoon clincis recently.

Mrs. West of Galesburg, recently spent several days with her son, C. W. West of the junior class.

Merrit 1902 has been away for a few days nursing an attack of tonsilitis.

Why was it so dark after the Dowie meeting? Alfred says it is because they arrested Sonnenschein.

Dr. Harnes has returned to college after his recent illness.

Dr. Senn took a short vacation recently.

Where is the nosiest place in Chicago? In recitation room B, Dental college.

Truax, Greem & Co. have new stethescopes with double bells. This change is worth the attention of students.

Men who have not purchased cash to tickets will do well to do so. Lack of tickets may lead to difficulties later on. See Prof. Hehtoen.

Dr. Wm. R. Patton, '62, is mayor of Mattoon, Ill.

Prof. Senn has returned from a quail shooting trip.

Dr. John McLean, '63, is at 567 W. Lake street, Chicago.

Dr. Maskel Lee, '88, is in practice at Atlanta, Ill.

Dr. J. H. Roth, '96, has offices at 555 Blue Island Ave., Chicago.

Dr. H. C. Gemmill, '03, is in practice at Logansport, Ind.

Dr. R. M. Houck, '82, La Salle, Ill., has disposed of his practice in that city.

Dr. E. W. Regan, '85, Canton, Ill., is president of the Fulton County Medical Society.

Dr. Solon C. White, '69, who has been at Sandwich, Ill., is now at Kansas City, Mo.

Dr. Jas. M. McClanahan, '74, is at Alexis, Ill. He was formerly at Kirkwood.

Ass't. Prof. Mayer is given a full page and half-tone in *The Med. Fortnightly* for October 16.

Dr. Frank H. First, '97, has changed his address from Rock Island to Upper Alton, Ill.

Dr. A. R. Martin, '92, formerly 467 Milwaukee Ave., Chicago, is now at 732 N. Hoyne Ave.

Dr. C. J. Whalen, '91, has moved from 225 Dearborn Ave., to the Hotel Luzerne, 780 N. Park Ave., Chicago.

Dr. Geo. T. Meacham, '93, Taylorville, Ill., has been appointed surgeon of the Wabash railroad in his town.

Dr. F. R. Sherwood, '88, who is professor of anatomy in our neighbor, the P. & S., has moved his office from 70 E. Madison to 100 State St., Chicago.

Dr. S. T. Hurst, '71, Greenview, Ill., was chosen president of the Brainerd District Medical Society, at the meeting in Lincoln, in October.

Dr. E. Steen, '99, is in Joliet, Ill., where he went to complete the service of one of the internes in the Silver Cross Hospital, who went to the Philipines.

Dr. B. V. Caffer, '99, favored us with a call recently. His office and residence is 260 S. Halsted St., Chicago, and you will find him in from 8 a. m. to 12 m. and after 4 p. m.

Dr. H. Gideon Wells, '98, is favored by the *Indian Medical Record* of September 20, published in Calcutta, India, with a lengthy abstract of his paper on the thyroid gland, printed sometime since in the *Jour. A. M. A.*

Dr. J. A. Baughman, '89, Neoga, Ill., was elected vice-president of the Aesculapian Society of the Wabash, at the meeting held in Terre Haute, Ind., October 26. Dr. J. Weir, '96, West Union, is one of the censors of the Society.

Dr. Martin D. Jones, '99, was married October 11, to Miss Emma Viola Lincoln, Aurora, Ill. The young couple will be "at home" to Rush and other friends after November 15, at 67 Forty-fourth Ave., Chicago, where the doctor is in practice. Congratulations!

Dr. E. R. Larned, '97, Joliet, Ill., reported a case of belladonna poisoning in a woman, also one of acetanilid poisoning in a man, at a recent meeting of the Will County Medical Society, in that city. The doctor was on the program of the meeting of October 11, for a paper on "Tuberculin Test."

Dr. Geo. M. Peairs, '91, Joliet, Ill., before the Will County Medical Society in that city, recently, reported a case of version in transverse presentation. The patient had been under attendance of midwives for twenty-six hours, the arm only having been delivered.

Prof. N. Senn received the following editorial comment in the *Hot Springs Med. Jour.*, recently:

"We yield to no one in our admiration of Dr. Nicholas Senn as physician and surgeon. He has demonstrated his great capacity for work on untrodden lines. He has blazed the pathway along intestinal surgery so plainly that "he who runs may read." It is now proposed, by some of his friends, to nominate him for Governor of the great State of Illinois. If he should receive the nomination we believe he will be elected. Hence, we do not want to see him in the race. We hope he will decline to run for the office. The profession can ill-afford to lose him, and herein lies our objection to *Governor* Senn. His education and life work has been outside of politics and political scheming, and along professional lines, and he is too great a surgeon to become entangled in politics. As we said above, we, the doctors of America, need *Doctor* Senn more than politics needs *Goaernor* Senn. There are other pathways in surgery for him to conquer, and blaze out for us, the followers. He has written his name high on the roll of honor along these lines, and while he may, by his sterling integrity, do great good in the political world, yet there is no one to take his place in the surgical world. Hence we hope he will decline to go into politics. What has this dirty pool to offer one of the greatest of the world's surgeons?"

Dr. J. I. Smith, '72, Shannon, Ill., died October 15, after an illness of several months duration, and was buried in the Lanark cemetery. The deceased was a native of Canada, where he was born in June, 1843. His family came west in pioneer days, and located in West Point township, Stephenson county. He was in the Civil War and served as a member of the 92nd regiment, making a good record. He went to Shannon in 1872, and always enjoyed an excellent practice, and the respect and confidence of all.

CORRESPONDENCE.

MONTERY, MEXICO July 21, 1899.

Mr. Robert Carson, Chicago, Ill.:

DEAR ROBERT:—No doubt you will be surprised to hear that I am away down in Mexico, but here I am, having been here two week. Shortly after my arrival in El Paso I received the appointment here in Montery as Quarantine Inspector under the U. S. Marine Hospital service. I have my office with the U. S. Consul General which makes it very pleasant for me. Montery is a city of 75,000 people, 2,000 of which are Americans. It is the cleanest and best city in Mexico. Everything here in business is flourishing. This is a fine location for a physician, but it is necessrry to be conversant with the Mexican language. There are only ten American physicians here.

Stevenson is practicing with my father in El Paso and I understand he is doing well. I expect to leave shortly for Mapimi, Mex., to act as surgeon for a large mining company. If everything goes on nicely as I am pretty sure it will, I will be in San Antonio, Texas, to go in with a large practitioner there. Mexico is a good place to make money, but a very poor place to exist. For this reason I am anxious to leave it before I get established here.

Have my address put in the CORPUSCLE.

W. H. VILAS, M. D.,
Care U. S. Consul General, Montery Mexico.

General athletics, football, golf, tennis, the horse, gun and rod, kennel, and every department of sport receive the careful attention of writers who have become famous authorities in their chosen fields, in the last number of *Outing*. The football papers will especially appeal to college men.

"The Philippines and Their Future," and "An Indian Plague Story," are only two of the attractive and valuable things in recent numbers of that popular weekly the *Living Age*, every number worth the reading.

The Antikamina Chemical Co., St. Louis, has our thanks for and of their morocco pocket folders, "oaded" with their laxative tablets—another evidence of the enterprise of this well-known firm.

RUSH IN MEDICAL LITERATURE.

Prof. Norman Bridge, in a paper on the "Management of Pulmonary Hemorrhages," in the *So. Cal. Practitioner*, April, points out that many hemorrhages are followed by an increase of fever, for the reason that either the bleeding results from an extension of the disease, or the accident has opened new channels of absorption to produce infection. The fever is, however, short in duration. As to drugs in excessive hemorrhage, he shows that the swallowing of quantities of common salt, nor the inhalation of turpentin fumes, do any good, and ice to the chest has little if any value. Hamamelis and ergot internally is also useless, the latter, indeed, positively harmful.

USE OF CASCARA SAGRADA.

Prof. H. N. Moyer, in *Medicine* for August, writes on the use of this drug in habitual constipation. His methrd of using it is to prescribe an ounce of the fluid extract (P. D. & Co. , and with it a dropper and some large-sized capsules. The patient is instructed to begin with 15, 20 or 25 drops, according to the case; this to be placed in the capsule just before taking.

"The dose is always given at night, and as the drug has a very slow action its effects are usually not noted until the following morning. The empty capsule is easily filled by the patient, and the nauseous effect of the drug is not noted. The dose is increased, if needed, by 5 drops each night until the quantity is reached that causes a bowel movement; the drug is continued at this dose for a few days, and is then gradually reduced one drop each night until its administration ceases. For instance, if a patient begins with 15 drops and increases 5 drops each night until 30 drops are reached, he would be three days establishing the maxium dose. After a few days would begin a gradual reduction of one drop daily, and the administration of the drug would terminate at the end of thirty days. The administration of this drug in series in this way, tends to overcome the tendency to relapse which is so persistent in cases of torpidity of the lower bowel. Cascara sagrade is the only drug that stimulates peristalsis of the intestine and at the same time permits a gradual lessening of the dose without marked decrease in its therapeutic effect. Used in the way here described, we believe it is the most efficient medicinal means at our command in the treatment of habitual constipation."

EXCISION OF HIGH RECTAL CAREINSMA WITHOUT SACRAL RESECTION.

Prof. N. Senn writes on this subject in the *Phila. Med. Jour.* September 30. He says· I wish to place myself on record as being absolutely opposed to the sacral route in all operations for the radical removal of the carcinomatous rectum. The sacral route has been selected, of course, only in cases in which the carcinoma involved the upper portion of the rectum, but I am fully convinced by ample experience that radical operations can be performed in all cases justifying such a procedure without this additional trauma and mutilation. I have become satisfied that sacral resection constitutes an important item in determining the high mortality of operations for high rectal carcinoma can be met and ample room for performing the operation secured by a preliminary excision of the coccyx. In extirpation of the rectum below the peritoneal reflexion even the removal of the coccyx is superfluous. In excision of the upper portion of the rectum the peritoneal cavity must be freely opened, and in such cases ample space is secured by removal of coccyx. If excision of the coccyx does not furnish the necessary space it is much safer to resort to the combined operation than to persist in creating additional space sacral resection. I hope and trust that, at least in this country, the Kraske operation will soon become obsolete."

SCIATICA.

Prof. H. M. Lyman's clinical lecture on this subject, delivered in Rush, is in *The Clinical Review* for August. The entire lecture is of rare value, but we can only reprint his remarks on the treatment, as follows:

"The treatment of sciatica is largely conditioned by its cause. Excluding traumatic and intra-pelvic causes, we shall usually find ourselves confronted with one of the numerous causes of an infective or toxic nature- These require general stimulation of the skin, the liver and the kidneys; but there is in addition much treatment of a palliative and anodyne character that must be employed for the immediate relief of the sufferer. Every severe case must be placed in bed, and provision must be made for immobility of the affected limb. In this connection it is usual to recommend the application of a long, straight splint, such as the surgeons use in fracture of the thigh. But this apparatus keeps the limb too quiet and entails the risk of causing stiffness of the joints that will be difficult to overcome. It is better to place numerous pillows under and around the limb, fully supporting it without complete immobility. If ordinary cushions are insufficient, long bags filled with sand should be laid against both sides of the leg and thigh. These can be perfectly moulded to the limb and give perfect support. The limb should be enveloped with soft cloths wet with the hot lead and opium lotion, and covered with thin rubber cloth or oiled silk. Boric acid lotions may be used in the same way. The bowels should be kept freely open with mercurials and saline laxatives. Sodium salicylate should be given in full doses—in grains every two or three hours for several days. In gouty cases tincture of colchicum should be given with the salicylate. Antipyrin phenacetin, and acetanilid are also useful palliatives. In some cases, however, it becomes necessary to resort to hypodermic injections of morphin and atropin. Before this, however, especially if hot applications, bags of hot water, or hot sand, fail to relieve, the method recommended half a century ago, by James Arnott should be tried. A lump of ice with a well-smoothed surface should be rubbed over the affected limb till it is thoroughly cooled. Wrapping with a towel the hand that carries the ice, will enable one to continue the application for a number of minutes. This produces a feeling of internal warmth with relief of pain. Similar results may be obtained by spraying the surface above the nerve with methyl chlorid, rhigolene, or other refrigerant or other refrigerant vapors.

"After the subsidence of the acute stage, massage may be employed with benefit. Electricity is to be reserved for the neuralgic forms of sciatica, and for the restoration of atrophied muscles. The current from the static machine is a useful means of relieving pain, but the relief is often very transient. It is worthy of note that its best effect is manifested when the patient perspires freely while taking treatment, thus bringing the remedy into the same class with other sudorifics. Muscular atrophy is benefitted by daily applications of a slowly interrupted galvanic current with the positive pole on the neck, and the negative pole over the wasted muscle. If muscular contraction can be secured by the passage of the faradic current, that will be the most convenient form of electricity for general application.

"Besides these external and mechanical methods of treatment, the patient will usually require a long course of reconstructive and eliminative treatment. Mercury and iodid of potassium for syphilitic cases:

℞.	Hydrarg. biniodid	gr. 1-25
	Potass. iodid.	gr. v
	Syr. sar. co.	ʒi

M

Sig. To be taken in a glass of water before each meal.

"For arthritic cases the well known tablet:

℞.	Guaiac resin	gr. iii
	Ext. phytolac. decand.	gr. i
	Potass. iodid.	gr. ii
	Colchicin.	gr. 1-100
	Digitalin	gr. 1-100

Sig. One tablet after each meal.

"The hot air bath is an excellent adjutant in all such cases.

"For chronic malarial cases;

℞.	Acid. arseniosi.	
	Strych. sulph.	aa gr. 1-30
	Podophyllin.	gr. 1-10
	Leptandrin.	gr. ¼
	Eunonymin.	gr. ½
	Quin. bisulph.	gr. i
	Ol. resin. piper. nig.	m. i

Sig. One such pill after each meal.

"Tubercular cases require cod-liver oil in large doses, together with the usual treatment for tuberculosis.

"The rarer forms of infective and toxic sciatica do not require special treatment. They must be medicated and cared for like cases of chronic syphlitic or gouty neuralgia.

"Obstinate cases that do not yield to ordinary medical treatment may be sometimes relieved by acupuncture or by injections into the nerve trunks of a drop of a one-tenth of 1 per cent. solution of perosmic acid. If these measures fail, it may be necessary to resort to nerve-stretching, either by forcible flexion of the leg and thigh upon the abdomen, or by cutting down upon the nerve at the lower border of the gluteal muscle, and making direct traction upon its trunk. Considesable force is admissible in this operation since the nerve is strong enough to support a weight of sixty or seventy pounds. So serious an operation should not be attempted until the general health of the patient has been first improved by rest, diet, massage and restorative treatment."

The Corpuscle.

Rush Medical College, Chicago, Ill.

In Affiliation with the University of Chicago.

VOL. IX. DECEMBER, 1899. NO. 6

THE ELECTIVE SYSTEM IN MEDICAL EDUCATION.*

BY JOHN MILTON DODSON, A. M. M. D.

Mr. President and Gentlemen:

The remarkable advance in medical education during the last two decades is a justly matter for pride on the part of the medical profession. This progress far exceeds that which had been made during the previous two centuries. It surpasses, moreover, the advance in any other department of education during the corresponding period, though it is to be noted that this is in large part due to the low standard which prevailed in medical education twenty years ago, and the large room for improvement which in consequence obtained. This progress has been the more creditable to the members of the profession because it has resulted solely from their efforts. The numerous legislative enactments, the changes in medical curricula and the development of public sentiment have been secured by the labors of the medical fraternity, oftentimes in the face of strong opposition from the general public for whose benefit these changes have been made.

Again, it is the more remarkable that the teachers in our medical schools, who have been so largely the efficient agents in this movement, should have developed the medical curriculum so greatly along purely pedagogic lines, though with few exceptions, they have been only incidentally teachers, being chiefly occupied with the practice of medicine.

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*Read before the Association of American Medical Colleges, Columbus, O., June 5, 1899

Justly proud as we are with this gratifying growth, there fortunately seems to be no disposition to remain satisfied with it. The proceedings of this Association and of the American Academy of Medicine, the numerous articles in our medical literature, and the enactment each year of new medical practice acts or the revision of those already in force, furnish abundant evidence that this progress is to continue.

While this advancement has been going on in medical education, great progress has been made in other educational lines, and especially in our colleges and universities. Pedagogy has developed greatly and the methods of teaching have radically changed. It will be interesting and profitable to compare the advance in medical education with that which has taken place in the literary and scientific colleges,—to note the lines along which this progress has been made, and to ascertain in what respects medical education can still further profit by the experience and thought of professional educators.

The lines along which medical education has progressed may be briefly stated as follows:

1st.—The increase in the number and duration of the courses required in attendance upon the medical school in order to procure the degree of M. D.

2d.—The increase in the requirements for admission to the medical schools.

3d.—The substitution of a graded course of instruction for the repetitional course of lectures.

4th.—The introduction of new branches into the medical curriculum, among them, histology, pathology, embryology, bacteriology, and the several specialities.

5th.—The employment, in all of the larger schools, of teachers for the fundamental branches whose time is exclusively devoted to teaching.

6th.—The development of the clinic in its true sense of instruction at the bedside to small groups of students.

7th.—The large increase in laboratory and practical courses, and, in connection therewith,

8th.—The encouragement of original research.

In collegiate education, the direction in which progress has been made may be summarized as follows:

1st.—An increase in the requirements for admission.

2d.—The introduction of new branches, especially the much larger place given to the sciences in proportion to languages and mathematics.

3d.—The great development of laboratory and seminar methods of instruction.

4th.—Encouragement of original research.

5th.—The change to a continuous session in a few universities as exemplified in the quarterly system now in vogue in the University of Chicago and the University of West Virginia, and finally,

6th.—The elective system in which the student is given his choice of a large number of courses of which he need take only a limited number.

On comparison of these statements, it will be observed that the advancement which has been made along certain lines is common to both medical and collegiate instruction. The increase in the requirements for admission has not been so great in the literary colleges, but, on the other hand, it has not been so uniform, and the great difference which exists in these requirements in the numerous colleges and universities of the country, far exceeds that which at present obtains in the medical schools. The introduction of new branches has been common to both the collegiate and medical course, and medical education has profited greatly by the large development of scientific instruction in the university course. It has made it possible for the student to lay a much better and broader foundation in those branches which are fundamental to practical medicine, such as physics, chemistry, and the biologic sciences, and this the medical schools have been glad to recognize by giving a credit of one year on the medical course for such training.

The large development of the laboratory method and the encouragement of original research, are also advances which have been common to both collegiate and medical education. The increase in the number and duration of the courses required in attendance, the introduction of the graded course of instruction, the employment of teachers whose time is exclusively devoted to that work, and the development of the clinic, are advances which are peculiar to the medical college.

It will be observed, therefore, that medical education has profited by all the advances which have been made in college education with the exception of the continuous session and the elective system.

The elective system is regarded by many of our best educators as the most conspicuous advance which has been made in educational methods in recent years. It has found its largest development, perhaps, in Harvard University, where practically all of the courses from the freshman year onward, are now elective. How generally it has also been adopted by the leading universities and colleges of our country, is known to all. It has even been adopted in some of the leading secondary schools; that is, the high schools and academies, and those pedagogic experts who have been studying our public school system of late years, urge the adoption of some similar method (perhaps better, in such a case, called a selective method), in even the primary grades.

Cannot this method be adapted with better advantage to the medical curriculum? It is the purpose of this paper to present this question, and I address myself, therefore, to the discussion of the following queries:

1st.—What is the elective system and in what respects may choice be allowed the student?

2d.--What are the advantages of the elective system? and,

3d.—Is it applicable to the medical curriculum, and, if so, to what extent and under what restrictions or limitations?

First, then, what is elective system? Election may be defined ae that method under which the student pursuing a certain course looking to the acquisition of degree or diploma, is allowed some choice in the courses of study which he may take. To illustrate: In the institution with which I am connected, credits are reckoned in majors, a major comprising 60 hours of didactic or recitation work, or 120 hours of laboratory, practical, or clinical work. About 12 majors are required to be accomplished in each of the four years. Of the twelve majors of the senior year, it is proposed that seven majors be in specified courses, which every student shall be required to take; for the remaining five majors, he may elect from a number of courses, aggregating say, 15 or 20 majors, a sufficient number to make up the twelve required. The term "election" is not applied to those studies which are taken by special students who enter the college with no intent of completing the course and receiving the degree. It is convenient, furthermore, to distinguish between elective and what may be called "optional courses," an optional course being defined as one which a student may take in addition to his regular work, but which is not accepted as part of the required majors of study, and for which no credit is given, excepting perhaps, a special certificate setting forth the fact that the student has taken the said optional course.

Election may be permitted the student in one or more of the following respects:

1st.—Choice of subject.

2d.—Choice of teacher, or,

3d.—Choice of the method of study.

In the election of subject the term applies not so much of choice between major branches, as for instance between anatomy, physiology, chemistry, and the like, but to choice of topics or portions of each subject.

In the election of teacher, the several instructors in a particular department may offer courses on the same topic, or courses on different topics, in which latter case the student choosing a particular course would have choice of both subject and teacher. In the matter of method, choice may be afforded a student as to whether he will pursue a subject taught by didactic lectures, by recitations, or by laboratory instruction, or by one or more of these combined.

The elective system presents advantages both to the student and the instructor. It enables the student to adapt his course to his abilities, his tastes, and his needs or purposes. The fundamental idea of the elective system is adaptability, or adjustability to the peculiarities of the individual. It recognizes the fact that, if all men are born free, they are by no means born equal in respect to mental capacity. No fact is more obvious than that individuals differ widely, not only, and perhaps not so much, in respect to what may be styled the "sum total of capacity," as in regard to the relative strength and development of the several faculties. Some men excel in powers of observation, others in memory, others in judgment, and if it is the purpose of an educational system to develop a well-balanced, thoroughly trained mind, it is manifest that, if there are wide differences in the individuals to be trained, the method of training must differ in different cases. This difference is noticeable in the child, as the result of inheritence, and it becomes increasingly manifest in the later years as the added result of the differences in environment and in opportunity. Under the elective system, these differences are freely recognized and opportunity afforded for the student to adapt his line of study to his peculiarities of mind, aided, of course, in his choice by the advice of his instructors.

Some consideration ought to be given also to the taste of the student. He pursues more earnestly, and with greater profit to himself, those subjects which interest him, while in many cases he should be advised, and perhaps compelled to take subjects which will develop and strengthen those faculties which are weak. In so far as possible, his interest should be aroused and sustained by giving him subjects which appeal to him.

Again, the very opportunity and act of election on the part of the student himself has been found to be an educational resource of no mean value. This act of choice involves a careful estimation of his own faculties and a study of the courses offered and their adaptability to his peculiar needs.

In the collegiate course it is of decided advantage to the student to be able to select, for at least part of his work, those branches which will prepare him for his future life-work, and so elective courses have been provided in most of the larger colleges which are fundamental to medicine, or to law, to journalism, to engineering, and more and more provision is being made for lines of study which will, in part, equip one for the various pursuits in life. This election to suit the purposes of the student is less applicable to the medical curriculum, as will be explained later.

To the teacher, the elective system presents the advantage of the greatest possible incentive to good work. An instructor whose students are required to be in attendance upon his lectures, whether they would or no, is under no obligation to make his course the best possible, and he is very prone to become careless and indifferent in his teaching work. If, on the other hand, the attendance upon his classes is left to the choice of the student, who is at liberty to elect other similar courses taught by other teachers in the faculty, that attendance will depend solely upon his efficiency as a teacher and constitutes a continual and most powerful inducement to the best work.

It is, however, the testimony of all who have had to do with the elective system, that the greatest benefit which results herefrom is the difference in the spirit which animates both tudent and teacher. It is wonderful, indeed, to observe the difference in the interest, the enthusiasm and the energy with which a student will pursue a course of study which he has himself chosen, ie contrast to that which he mahifests in a course that he has been compelled to take. I have seen this illustrated many times in students under my own observation, who have entered upon the study of medicine after pursuing a college course. The record of such a student may have been very indifferent in the literary college, the subjects in which did not especially appeal to him. Having decided, however, upon medicine for his life-work, and with, perhaps, an inborn taste and aptitude for the kind of work which is offered in the medical curriculum, he becomes, as it were, a new man when he enters a medical college, and the difference in spirit which animates him, the energy and enthusiasm which he displays in his work, is gratifying indeed.

I have observed, too, that in some cases during his college course, where some of the branches were fundamental to medicine, his work in these would be excellent, while his work in the languages and literature, taken at the very same time, would be very mediocre.

The same difference in spirit animates the teacher, and the feeling that the studies are being pursued under different conditions seems to be mutual between teacher and pupil. The Instructor is stimulated to a vastly better and more satisfactory work, who feels that his students are pursuing his course, not from compulsion, but from choice, and their increased enthusiasm and interest reacts upon him.

Can the elective system be adapted to the medical curriculum? In the discussion of this question, let it first be noted and emphasized most strongly that the primary object of the medical course is *education*, and not the imparting of information. As it is the primary object of fundamental education to draw out, develop, and strengthen the faculties of the mind symmetrically, so it is the primary object of the medical course to teach the student to observe accurately, record faithfully, and think clearly upon medical subjects, and in connection therewith, to develop acuteness of perception in the eye, the ear, and the other senses, and to train the hands in those manipulative procedures which are used in medical and surgical practice. The accumulation of facts is important, but secondary. But, granting the importance of acquiring information, what is our present situation in regard to the matter? It will be conceded by everyone that the amonnt of information which the best student can acquire upon any subject of the medical cirriculum bears but a small ratio to the sum total of knowledge in that subject. The professor of anatomy, for example, devotes his life to the acquisition of knowledge upon his chosen subject, and finds that life all too short for its mastery. How obvious that the amount of anatomical knowledge which he can impart to his students is but a fraction of the sum of knowledge which pertains thereto. Conceding this fact, is it certain that the course of study which has been mapped out in any medical curriculum is the best possible for every medical student? Is it at all probable that any course which might be outlined by the wisest faculty, would be the very best course which might be arranged for each individual student? A sufficient answer to this query may be found in the report of your committee on the condition of medical colleges, to be presented at this meeting. That report sets forth very clearly that there is the widest range of difference between the curricula in our various medical schools, not only in the subjects which are included in the cirriculum, but also in the relative amount of time assigned to each. It is certain that each one of these schedules of study cannot be the most perfect one possible. If, then, medical teachers differ so widely among themselves as to the best course of study, why may not the student be allowed some choice in the matter, and permitted to arrange his course to suit his individual capacity and temperament? He should not, of course, be allowed to omit any of the major branches, but in each of these he may, with advantage, be allowed to select those topics and to pursue their study by that methud which is best adapted to his own case. For the present, it is perhaps better to restrict the election of subject to the junior and senior years, but in the choice of teacher, especially in the recitation or quiz courses, there seems no good reason why choice should not be permitted in the freshman and sophomore years. Allusion has been msde to the great stimulus which is thus afforded to the teacher. Illustration to this effect is afforded in the system of *privatdocents* in vogue in the German universities. These instructors offer private courses in preparation for the regular examinations, which are accepted as equivalent to those by members of the regular faculty. A fee is exacted by the *privatdocent* for this course, and his income therefrom depends upon the number of students which are attracted to his classes, and this in turn depends directly upon the strength and efficiency of his teaching. The advantage of this plan in developing teachers is obvious. Many of the most distinguished professors in the German universities began their teaching career as *privatdocents.* Nothing is so essential to the development of a teacher as the opportunity to teach. How frequently it happens in this country that a physician who may have attained some distinction in the practice of a special branch in medicine, has been called to fill a professor's chair with no previous experience in teaching whatever. and, if, as has often happened, he is no longer a young man, though he may be a recognized authority upon his special branch, he never becomes an efficient instructor! The elective system affoads a plan by which younger men may be kept in constant training for the higher positions in the faculty, under conditions which will induce them to continue in teaching work, though in subordinate position, for a long time. The regular professor, too, will feel a new incentive to better work if the attendance upon his classes depend upon the usefulness and attractiveness of his course and not upon the compulsion of his college rules.

The choice of method of study is to my mind of great value. To be sure, every student should take advantage of all of the means which are offered,—the didactic lecture, the recitation, the laboratory course, the practical and clinical courses are all needful to him,—but the relative amount of time given to each, or the manner in which he shall pursue a particular topic may be well left to his choice. We have had, of late, much sweeping, and in part, unjust and foolish criticism of didactic method of instruction. The imparting of knowledge by word of mouth is doubtless the oldest of teaching methods. It still has, and always will have its place, and is of especial value to certain students. Some individuals acquire more readily and retain more permanently, knowledge acquired by the spoken word than that communicated by the written page. Some students, on the other hand, especially need the laborious exacting drill of the quiz room, while others do better work in the laboratory, and may be safely left to follow out their own bent, it being certain that they will do faithful and efficient work. There is great latitude, therefore, in the choice of a method of study, at least in certain branches.

Some consideration, too, may properly be given to the tastes of the student for no student does as faithfully or as profitably to himself, work which is not to his liking, as that which he thoroughly enjoys.

Should a student be allowed to adapt his course to his purpose in after-life, that is to a preconceived intent, to follow some special line or practice? I would answer this questisn most emphatically, "No!" We have had far too much of callow specialism and of the embryonic specialist. It is to be hoped that the near future will deliver us from the precocious young man who becomes a specialist, that is, endowed with special knowledge and special experience along a particular line of practice, by suspending a shingle on his office door announcing that fact the day after his graduation. It is to be regretted, that in the profusion of legislative enactments in regard to medical practice with which we have been favored in recent years, some consideration should not have been given to this matter and some means not have been provided to protect the public against the imposition of the pseudo-specialist.

As has been indicated, it should be the aim of the medical college to develop the all-round general practitioner. No encouragement, whatever, should be given to the student to prepare for a specialty. Every student should be advised that no man can properly enter upon the practice of a specialty in the profession until he has been in general practice for a number of years. Parenthetically, may I remark, that it seems to me the special branches have come to occupy too large a space in our curricula, and one of the advantages of the elective system will be that it affords a ready means of subordinating these special lines of study to the more important fundamental branches.

If the elective system be adopted in our medical schools it must be done under certain restrictions and limitations which would not be necessary in the collegiate courses. First, there are restrictions properly imposed by the several medical practice acts and the rulings of the state boards of medical examiners requiring that instruction shall be given in specified branches. This problem can be readily met, however, by the adoption of a rule specifying that no student shall present more than a stated number of majors of credit in any one branch. This would indirectly compel him to give a minimum amount of attention to each of the major studies, and that it is as it should be, quite irrespactive of any attitude of the examining boards.

The number of elective courses which can be offered in many schools will, for the present, be limited by lack of space, restricted laboratory facilities, and the small size of the faculty. The need, however, for large equipment in all of these respects is already upon us if the demands of modern medical education are to be met. The time is past when a series of didactic lectures delivered to lasge classes will suffice to comprise the curriculum. While the didactic lecture even to large classes has, and will continue to have, a useful function, it must be accompanied by abundant recitation, laboratory and practical courses given to small groups of students, and this means more space for laboratory equipment and more teachers, quite irrespective of the elective system. On the other hand, the elective courses provide an opportunity to atilize the clinical facilities of many hospitals not directly connected with the medical college, whose resources are not now being used.

May not the elective system, furthermore, point the way to a concentration and co-operation of resources now wastefully distributed in rival schools? In the city of Chicago there are eight medical colleges of the regular school, with an aggregate ettendance of over two thousand students, and a combined faculty of over five hundred teachers, What a waste of administrative energy is involved in this arrangement! How much better it would be to have one medical school with eight professors in each department, and a corresponding number of assistants, than to have eight medical schools with one professor in each department! What an increase in enthusiasm, strength and efficiency might result of combination and co-operation of the resources of these several colleges! This condition is not confined to Chicago, but is to be found in almost every other large city in the United States, and in many smaller ones as well. The elective system affords a ready means of utilizing all these forces in a single institution in each city.

Finally, to summarize briefly the points of this discussion:

1st.—The elective system is one of the greatest advances which has yet been made in educational methods.

2d.—It is one of the two improvements in pedagogic science which has not yet been adopted by the medical colleges.

3d.—The election is not necessarily confined to choice of subject, but pertains also to choice of teacher and method of study.

4th.—The elective system possesses great advantages for both student and teacher, especially in the difference in spirit which animate both, and

5th.—It is readily adaptable to the medical cirricula, under certain restrictions and limitafions, and ought to be promptly introduced into our medical colleges.

THE RELATION OF THE CIRCULATION IN THE CORONARY ARTERIES TO THE ACTION OF THE HEART.

By Walter Vose Gulick, 1901.

PART I.

INTRODUCTION.

The distribution of the coronary arteries is a subject that has had careful attention and been worked out with a considerable degree of accuracy. Some two-hundred years ago one Ruysch explained an anastomosis between these arteries, which was particularly in evidence at the point where the auricular ventricular groove crosses the posterior interventricular margin. This view seems to have been commonly accepted by the anatomists of that period, but a few decades later the conception of the extent of anastomosis came to be modified, for experiments appeared to indicate that the communication between different coronary arteries was limited to capillaries, and arteries which were too small to permit of the establishment of a collateral circulation. In connection with this position the names of Henie and Hyrtl are properly mentioned.

Further work touching on this subject did not lead to any thing of consequence, until within a few years a series of experimental studies was undertaken in the Laboratory of Physiology of the Harvard Medical School, where certain new methods of investigation were employed by Dr. W. T. Porter and others. The published results coming from this source afford perhaps the first opportunity for an intelligent understanding and discussion of the relation of the circulation of the coronary arteries to the beat of the heart.

Previous literature has little bearing directly on this topic save for the anatomical explanations regarding the heart. And now the material found available in this connection has not gone much beyond the papers mentioned above, which have been printed from time to time, since 1894, in the American Journal of Physiology.

Elements concerned in the Action of the Heart. In the nerve tissue, muscle tissue, blood, and lymph we have the constituent elements which claim consideration in this connection.

Lymph. Inasmuch as no experimental work has yet secured data in regard to the lymph, mere mention is all that can now be possible, but here it should be understood that this is a serious limitation, for the presence of lymphatics in the heart wall has been recognized, and it is not at all improbable that the lymphatic fluid of the intramural spaces touches very closely the circulation of the coronary arteries. However could this be demonstrated it seems likely that while the statements bearing on the coronary circulation might have to be modified, the inferences based upon the work to be reviewed in this paper would not be vitiated.

Nervous Tissue. It was, until within a few years, held that the groups of nerve cells, ganglia, had to do with the rythmic contractility of the heart. This view seemed to have support in the study of a frog's heart, where even after the ventricles and auricies had been cut up, the separate pieces were found to have individual ability to maintain rythmic contractions, and the fact that it was the parts known to contain ganglia, which particularly gave evidence to this property, while the apex which was considered to be without nerve cells failed to respond similarly, seemed to be significant. But when Gaskell proved that this beating occurred in the apex in response to the right sort of a stimulus, a new theory had to be sought.

Though investigators now quite generally believe the apex of the heart to be free from nerve cells, Dr. J. H. Berkeley (v. J. H. U. Hosp. Rep.) reports a different finding. But Dr. Porter calls attention to the fact that the conclusions which had to be reached through the use of the Golgi method (employed by Berkeley) are hardly to be counted safe, because of the precipitation easily occurring with chrome silver. But be that as it may, under the next heading other experiments will be referred to, which seem to indicate that whether or not there are nerve cells distributed throughout the heart wall, the beat can occur independently of any stimulus from that source.

Muscle Tissue. While the rythmic contraction secured from the excised apex of the heart leads to the inference that this marks an inherent property of the muscle tissue, there are other experiments which are of importance in confirming this theory.

Two years ago Dr. Porter operated upon a dog, opening the chest cavity, and the pericardial sac, lifting from the surface of the ventricle wall, near the apex, an oval piece of tissue, which was so cut as to sever all connection with the heart except a branch of the descending coronary artery and a bit of the pericardium, sufficient to support this vessel. When the separated part was held free from the surface of the heart, it was observed that while nourished by blood coming through the connecting artery, a regular, though slow, beat was maintained.

Then at another time he observed the same kind of a rythmic beat shown by a similarly separated apex of an excised heart, when supplied with defibrinated blood through the descending branch of the anterior coronary artery.

Working in this way he reached his conclusions, that the cause of contraction was within the ventricle itself, but limited to no particular center. And in a later paper (Am. J. Physiol. Vol. II. No. 2.), under the title "The Coordination of the Ventricles", Dr. Porter reports and explains the experiments which make it evident that the synchronous beat of the ventricles is dependentt upon their muscular connection. Briefly, a heart was nourished by blood fed artificially through the coronary arteries, then the ventricles were so slit as to nearly separate different parts, leaving intact the supplying coronary branch, a bit of connective tissue, and a few muscle fibres. For all such portions there continued but one rythmic beat. But when for any of these pieces the connection of muscle fibre was severed, its beat became independent.

In order to make more definite this evidence, which seemed to mark the rythmic responsibility as belonging altogether to the muscular structure of the heart, zig zag cuts were used in the separation, thus reducing the chance of any nerve connection remaining. The result pointed to the same conclusion as before, for as long as there remained any connection of muscle tissue, direct or indirect. the co-operation of the beats continued, but ended when the continuity of the muscle tissue was broken.

Blood. In a recently published paper Prof. W. H. Howell, of Johns Hopkins University, reached conclusions based upon laboratory work, which indicate that the organic materials of the blood are not essential to the maintenance of pulsation by the heart. Thus, he points out that since a strip from the wall of the heart of a terrapin can continue to show rythmic contractions for forty-eight hours after being immersed in a bath containing only certain inorganic salts, that the theory which holds the serum albumin of the blood an essential element must be without proper foundation.

This fact may have a bearing upon the relation of the coronary circulation to the action of the heart, proving of particular significance in certain pathological conditions, where the process of osmosis and the lymphatics may be involved in the nutrition of the heart in a way that can not now be explained.

For the present, however, we have to say that the blood supplied through the coronary arteries is the existing media of nutrition for the muscular tissue of the heart.

PART II.

THE CORONARY ARTERIES.

From the consideration thus far presented it seems that touching the component elements of the heart, this paper has now to deal with the blood circulating through the coronary arteries as the nutrient media of the muscle tissue.

Thus there is involved an anatomical knowledge of the coronary arteries, together with a study of their anastomosis from a physiological standpoint, after which there may be considered the possibility of a blood supply from other sources, and finally the effect of ligation of the coronary arteries.

Anatomical Distribution. The statement in Gray's Anatomy gives the right coronary artery as having origin just above the anterior semilunar valve, then passing just to the left of the right auricular appendix, and running to the right side in the auricular ventricular groove as far as the posterior ventricular groove, where it divides into two branches, one following this groove to the apex, and the other continuing the previous course to anastomose with the left coronary. And of the left coronary artery it is stated that it has origin above the left semilunar valve, passes to the right of the left appendix, divides into two branches, one following the auricular ventricular groove to the left, and there anastomosing with the approaching branch from the other artery, while the other follows the anterior ventricular groove to anastomose at the apex with the branch coming down the posterior ventricular wall. And from these branches just mentioned other smaller branches are given off completing the blood supply for the surface of the heart.

Further, from Quain's Anatomy we learn that the hight of the point of origin may vary somewhat, that the two arteries may come from a common trunk, or by separate trunks from the same sinus, while sometimes there are three arteries.

Inasmuch as the experiments recorded have been made upon cats and dogs it is of consequence to note the way in which the arrangement of the coronary vessels differs for these animals, and so the following is taken from the description given by Baumgarten

In the cat's heart the left coronary artery which is definitely the larger, supplies the whole of the left auricle and ventricle. In front it bifurcates just above the anterior auricular groove, one branch following the groove towards the apex, while the other and larger branch turns backward and then behind follows the posterior ventricular groove towards the apex. The most important of the deep branches is the artery of the septum which is given off from the anterior main branch, near its beginning. The right coronary, on first reaching the auricular ventricular groove, bends backward, contining until near the posterior ventricular groove, at which point it frequently turns so as to extend downwards and forwards. And, as in the human heart, from the branches indicated smaller branches are given off completing the distribution.

In the dog's heart the general arrangement is similar to that of the cat, but the artery of the septum has usually an independent origin, while the descendents supplies a larger portion of the apex.

Veins and Vessels of Thebesius. After indicating, through this somewhat shortened outline, the course of the coronary arterial circulation, and having already stated the reasons for holding that the beating of the heart is controlled by the contraction of muscle tissue, supplied by a nutrient media, which in fact is the blood, it is pertinent to ask whether there is any other possible source of supply.

Under the heading of "Endocardiac Nutrition of the Heart", Pratt has reported work done in the laboratory of the Harvard Medical School. There he found it possible to demonstrate that the vessels of Thebesius gave communication between all the cavities of the heart and the coronary vessels, reaching the arteries through capillaries, and the veins through passages of a larger size. He pointed out that the valves of the veins were insufficient to prevent the entrance of blood. And further by repeated experiments was able to show that a heart was capable of rythmic contractions when artifically fed with blood admitted through a canula pushed past the mitral valve, and held in place by an auricular ventricular ligature. Here, where the heart wall must be nourished by blood supplied from a backflow in the veins, and through the vessels of Thebesius, under small pressure it was found possible to secure long continued and regular contractions. Thus in the case of a cat's heart, nourished in this way through a vertically placed canula, blood at the hight of 12 c. m. produced beating which was kept up for an hour and a half. And though the blood was renewed from time to time, yet there was not at once more than 4 c. c. of blood in the canula.

Also Dr. Porter, by experiments made last year, was able to demonstrate the value of an atmosphere of oxygen in maintaining the beat of an excised heart. He found that when a heart was submitted to a sufficiently high pressure of oxygen, while fed only by way of the veins and vessels of Thebesius, that the rythmic contractions should be continued for hours.

Likewise in the laboratory of Rush Medical College an experiment indicated this possibility of an endocardiac blood supply. A dog's heart was fed with defibrinated blood entering the left ventricle at a moderate pressure through a canula, held in place by a ligature that followed the auricular ventricular groove, and at the same time served in closing the coronary arteries; and then blood trickled a small stream from an incision made into the descending branch of the left coronary artery.

While it is true that an endocardiac supply would have a direct bearing upon the relative importance of the coronary circulation, and would have a special significance in certain pathological conditions, yet it seems proper to refrain from further detail so far as this paper is concerned, because more recent indications have on this point furnished contra-indications.

Physiological Relations of the Coronary Arteries. The distribution of the coronary arteries has already been mentioned, but that statement was anatomical, and while the physiological facts applied to these vessels give a corresponding arrangement, it is of importance to discriminate between an anatomical and a physiological anastomosis, and also to have a clear understanding of the meaning of a terminal artery.

In fact a merely anatomical study of arterial distribution and anastomosis does not give safe ground for conclusions involving physiological functions. For instance the injection methods used in demonstrating the arrangement of vessels in the heart wall depend upon an artificial pressure, which may or may not correspond with that existing under normal conditions; and further there is a difference between injecting fluids and the oxygenated blood of a living heart, which would make an error probable even if the pressure could be made to match that found in life.

W. Baumgarten has recently published (V. Am. J. Physiol. Mar., 1899.) his studies dealing with this phase of the subject. Here he has based his anatomical statement upon radiographed plates showing the injected arteries. The result thus secured marked occasional anastomoses between arteries with a diameter of o. I m. m.

Then experimenting both with dogs and cats, a study of the infarcts formed after the ligatian of the different coronary arteries, gave data for a definite statement as to the physiological distribution of the coronary arteries.

It was found that the areas supplied were in extent about what was to be expected from the anatomical distribution.

But the fact of infarction in itself is evidence that a collateral circulation failed to be established, or in other words, that the arteries concerned are terminal. And inasmuch as the want of a common understanding as to the meaning of a terminal artery has led to some confusion, it is well to define the use accorded this expression here. Arteries after continued division are named capillaries, so in a sense there is no such thing as an arterial termination, but when an artery is so small that blood can only enter under a pressure which does not allow the possibility of a collateral circulation, then the term terminal is allowed.

Referring again to the experimental infarcts of Baumgarten, it is of interest to note that they gave a uniformity in result, so that while there was a certain limited variation in the distribution, yet a definite area could be mapped out for each artery. Also it was observed that there was an overlapping in the distribution, though the vessels were physiologically distinct.

In injecting to secure radiographs, the same experimenter found in one animal's heart, out of the sixteen used, a direct anastomosis between two coronary branches. And in reporting this he has to call attention to the fact that while the injection mass moved easily through the communicating vessel, yet a collateral circulation had not previously been established, though the coronary artery supplying the space in question had been ligated thirty-six hours before.

This fact, then, that the coronary arteries are end arteries, means that when a coronary artery is closed the establishment of a collateral circulation through connection with some other coronary branch is physiological impossible; further, on the same ground the chance of a blood supply from the veins and vessels of the besius has to be set aside.

The Circulation of the Coronary Arteries: It has been noted above that the force of contractility to which the action of the heart is due lies within the muscle tissue, which depends for nutriment upon the existing media, that is the blood.

Porter, in 1894, found that after the ligation of any one of the large coronary branches, the heart usually recovered. In the case of the artery of the septum recovery never failed, seldom for the right coronary artery, occasionally for the descendens, and more often for the circumflex. He recorded also the fibrillation that occurred in in some instances, but generally allowed recovery.

Experiments by Saumgarten had a similar outcome. His paper tells also the histological findings in regard to changes which mark the increasing age of an infarct. The method was, after the ligation of the selected artery, to close the chest cavity and kept the animal alive for a certain period, which in the course of his investigations varied from a day to three months. Then with the heart properly hardened, serial sec tions were cut, and one for each m.m. were used in making up the set that represented the infarct.

Under the microscope coagulation necrosis characterized the recent specimen, and the blood vessels were for the greater part of the area without corpuscles, though about the margins the vessels were distended with blood. With an increase in the age of the infarct along with other modifications occurred a peripheral accumulation of leucocytes, hyaline degeneration, and the less distinctly striated appearance of the muscle tissue were other features that belonged to a progressing stage. Finally connective tissue cells led to the formation of connective tissue fibres, which reached out into the surrounding normal muscle tissue.

The macroscopic changes showed the fresh yellowish, opaque flaccid infarcted area becoming whiter, at the same time contracting, with the appearance of newly formed connective tissue. One instance was recorded where the infarct had reached an age of seven months, had reduced itself to a glistening white membrane, which after the fashion of a tendon was connected with the muscular walls.

Thus it seems that if the coronary circulation be cut off from an area not too large, while it cannot receive blood by the establishmeut of a collateral circulation, yet with necrosis followed by the building up of connective tissue the action of the heart may continue. For as has been indicated by the previously mentioned experiments, in which rythmic contractions were secured from parts that had been so cut as to have only an arterial coneection remaining, the integrity of the whole heart is not essential to its rythmic contractility.

EXPERIMENTS IN THE LABORATORY OF EXPERIMENTA PHYSIOLOGY IN RUSH MEDICAL COLLEGE.

Technique. In the instances where the experiment had the heart in situe, the dog was first anæsthetized with ether, then trachetomy was performed and a canula inserted into the trachea. This canula, by means of a forked connection, was so arranged that either ether or air could be forced into the lungs through an attached syringe bulb, and an artificial respiration maintained, the expired air going out through the free tube, which had to be closed when the lungs were being inflated.

After this, following the juncture of the ribs with the costal cartilages an incision was made directly into the chest cavity, through which space the pericardial sac was opened and the heart exposed to view.

When it was desired to record the blood pressure a mercurial manometer was used with the recording point marking on the revolving surface of a kymograph, the connecting tube, which was inserted into the carotic artery, being first filled with a saturated salt solution.

April 21, 1898. From a kitten, under an anæsthetic, blood was draw from the left carotic artery. Saline solution was then fed through the right jngular vein, and more blood drawn as before, which was added to the first portion. The heart was exercised and permitted to lie in a dish of warm salt solution, and then defibrinated blood, warmed to 40 C. was fed through the cororary arteries, by a canula fastened into the aorta. A rythmic beat of about a hundred and sixty per minute was thus maintained, until a flame turned too high overheated the blood, and brought the experiment to an end.

December 22, 1898. With a dog a canula, attached to a manometer, was fastened into the left jugular vein, and a time marker recording seconds placed so as to write below the recording level. A ligature was placed high up on the descending branch of the left coronary, but not deep enough, as learned by later dissection, to secure closure of the artery. The kymogram showed a variation in the pressure, indicated by a vibration of the time marker. Then after an even pressure had been continued about four minutes; one half ounce of air was injected into the left ventricle. The level indicated a sudden fall of 1 c. m., continued at this level ten seconds, then with a jerk rose 1.5 c. m., afterwards falling slowly to its original level. At this point the ligature was loosened and bubbles of air were seen passing in the coronary circulation.

January 13, 1899. Blood was taken from the carotic of a dog. The heart was exercised and warm water and salt solution. Then a rubber covered canula was introduced into the left ventricle through the aorta, and held in place by a strong ligature about the auricular ventricular groove, thus shutting off the coronary blood supply. The defibrinated blood was fed through the canula, and from a cut made in the left coronaiy vein, blood was seen to escape in a very small stream.

March 18, 1899. Apparatus was arranged so as to record the blood pressure in the carotid of a dog, the heart exposed and a ligature placed about the descending branch of the left coronaey artery, and then an incision into the artery below was followed by a slight bleeding. The blood pressure showed something of an irregularity after ligation. The continued line with its irregularities represented the actual variations in pressure, while the straight portion of this line to the left of the middle indicated the restored evenness of pressure, after the revolution of the cylinder. The right portion of the lower line records seconds.

At another time the vessels in the heart of a large dog were injected under forcible pressure, picric acid being used for the veins, and copper sulphate solution in the arteries. It was observed that these vessels became enormously distended. Those with a normal lumen of near 1 m.m. came to show an internal diameter three or four times as great.

Other experiments are not separately mentioned here because they failed of results that would add to the date already secured.

SUMMARY.

1. The property of contractility for the heart lies within the muscle tissue, and for its exercise a nutrient media of the proper sort is necessary.

2. The coronary arteries are shown by infaction to be physiologically terminal.

3. After ligation the infarct formed may give place to connective tissue.

4. After the ligation of a coronary artery, an animal may live, its chance of recovery depending upon the size of the artery ligated, and the condition of the heart.

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Quain.

Anatomy.

The Corpuscle

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MEMBERSHIP IN THE ALUMNI ASSOCIATION OF RUSH MEDICAL COLLEGE is obtainable at any time by graduates of the College, providing they are in good standing in the profession, and shall pay the annual dues, $1.50. This fee includes a subscription to The CORPUSCLE for the current year. This journal is the official organ of the Association.

Dues and all communications relating to the Association should be sent to
JOHN EDWIN RHODES, M. D., Sec'y. and Treas., 34 Washington St., Chicago.

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The CORPUSCLE trusts that it is not going out of its sphere in making a few remarks concerning our present system of quizzing.

It is the sentiment of the combined student body, we think, that recitations should be something more than a mere asking and answering of questions. It is not to be wondered at if men who are disposed to do thorough work lose interest in the quizzes, if it is understood that the instructor has nothing definite to say, nothing to bring from his own experience, in short quizzing from the outline of the text. We are sorry to say that some of our masters follow that plan.

The student who is here with the fixed purpose of obtaining the best that can be given in medical instruction, is the first man ready to co-operate with the instructors who can *teach*, and who has something to *teach*. Not only do we need men that can teach but we need men who can command respect from his students. Of course a quiz master can not keep order in a section if the students do not assist him, but on the other hand if a man has not sufficient personality to command respect, the fault does not lie entirely with the students if order is not maintained. We notice that these of our instructors who make their quizzes interesting, and whose horizon is not limited by the text book they are using, never receive from their students nothing but the most strict attention and unbounded respect.

The trustees of the college have requested that students make suggestions regarding matter of general interest to the college. In commenting on this quiz master problem we do so firm in the belief that we are putting before them one of the greatest needs of the undergraduates. We ask that some of the present men, be supplanted by instructors who can teach as well as ask questions.

Considerable misunderstanding prevails as to the question of seats in lectures. The seniors say that they have a prior claim upon seats in all lectures. If this is so the juniors should be notified, as they have understood that they should be shown some consideration in lectures that are regularly scheduled for the third year work.

An apology is due to the subscribers of the CORPUSCLE on account of the delay of the November number. In justice to ourselves we would like to say that the lateness was due to the printer, as all of the copy was in his hands on the scheduled times. We trust that this unfortunate circumstance will not occur in the future.

The plan that Dr. Parker has originated of encouraging a system of research in connection with the dissecting room, is one that meets the sincere approval of all those interested in the welfare of Rush. It is an evidence of the spirit of advancement which has done so much to put Rush Medical College in the front rank of American Institutions. Nowhere does original reach work find more encouragement than within our own halls.

NOTICE. If corrections and additions to the student directory, which we publish in this number, are dropped in the CORPUSCLE mail boxes, we will make the necessary changes in the next issue.

COLLEGE NOTES.

H. P. Fenley, '99, has received a position in Massilon, Ohio, hospital.

The football caps have arrived. The sweaters will arrive in a few days.

Miss Ruth Brockway of Toledo, Ohio, is visiting her brother, Mr P. B. Brockway, of the Senior class.

The baseball prospects are excellent. Manager A. W. White is arranging games with the best teams in the West.

Rush is soon to have a medical journal. This is well. We hope to give a more extended notice next issue.

Nearly one hundred Rush men attended the Chicago—Wisconsin football game at Madison on the 9th.

Rush students are reminded of the inefficient street cleaning department every time they cross Ogden avenue on a stormy day.

Dr. E. L. McEwen who has finished his interneship at the County Hospital, sailed for Europe Dec. 9. His classes in anatomy will be taken by Dr. Roe and Dr. Lewis, both '99.

There are many in college who would like to see the "Pulse" published this year. With the artistic and literary ability we have in college, a very good annual could be produced.

Rush keeps up her standard. An ex-Rush man now at the P. & S. carried off the honors in recent Junior examination.

The Juniors say it takes a lot of *gall* to sit in a front row during a Junior lecture.

J. R. Hawkins, '00, partook of Thanksgiving turkey with friends at Freeport, Ill.

C. D. Shaut, '00, spent Thanksgiving vacation at his home in Kenosha, Wis.

Dr. W. H. Goodwin, '99, was about college recently, having brought two patients to the Hospital. Dr. Goodwin has located at Indianola, Ill., and gives a satisfactory report of his professional work.

L. A. Moore, '00, visited friends at Bloomington, Ill., Thanksgiving Day.

Dr. F. C. Honnold, formerly an editor of the CORPUSCLE, has contributed to the Students' Library bound Vols. I, II, III, IV and V of the CORPUSCLE.

The Faculty syllogism promulgated recently has been objected to by the Seniors both as to the premises, major and minor, and the conclusion. We give it herewith for the benefit of those who came after·

1. The final examinations at end of Junior year determine whether or not the candidate will graduate.
2. Quarterly examinations during Senior year are to ascestain whether same tone is being continued in the work.
3. If failures in the quarterly examinations occur, the failures will be "plucked."

Moral: Bone, brother, bone.

Along with a notice of the clandestine marriage of one of our prominent Seniors was a very touching poem which we are sorry to disappoint the bard by not reproducing here.

L. E. Stowell, '00, has the honor of appointment to an interneship at the Norwegian Hospital.

Dr. Arvid Philblad, '99, of Lindsborg, Kan., sends the following clipping from a local paper. He thinks probably such a "rare" case would be interesting to note, but wishes it understood that this extraordinary case occurred under the supervision of his collegue, the other doctor in the town:

"A son was born to Mr. and Mrs. Chas. Leander, who lives eight miles east of Bridgeport, a few days ago. Mother and child are doing well with the exception that one of Mrs. Leander's lungs has become ruptured filling the upper portion of her body with air. She is under efficient medical care and getting along as nicely as could be expected. The doctors say this is an extraordinary case and are watching it with a great deal of interest."

Prof. Adams of McGill University, Montreal, Nov. 29 gave a very interesting lecture at the County Hospital on the subject "Goitre," before representatives of the several medical institutions of the West Side.

As in former years Prof. Cotton has requested members of the Senior class to prepare papers on various diseases of children. The first of the series of papers was read by G. W. Roberts Dec. 1, the subject being "Typhoid Fever."

Prof. Norman Bridge departed for his California home Nov. 27, leaving Prof. J. A. Robinson in charge of his medical clinic.

In lieu of an examination in his clinic of mental diseases Prof. Brower has requested each member of the Senior class taking that course to write an article on some one of the diseases present in cases he had shown.

The examination held recently for position of prosector was taken by quite a number of Sophomores. Those making highest grades and receiving appointment are Messrs. J. H. Fowler, R. W. Sykes, A. O. Shaw and E. H. McIntyre.

The annual Sophmore dance was held at Van Buren Opera House the evening of Nov. 23.

The "guileless" seniors may well quote the adapted quotation from Shakespeare that Prof. Webster says an Edinborough student once gave during a clinical examination. It is, "An '*os*, an '*os*, my kingdom for an '*os*."

The new annex to Nurses' Home is said to medic—and mice-proof.

It is thought that owing to the adverse verdict in the Dreyfus case many members of the Senior class will stay from the Paris Exposition of 1900.

Prof. Favill recently quoted the following to the Seniors who sincerely hope there will be enough fools left to go around: "A man, forty-five years of age, who is not his own physician, is a fool."

STUDENT DIRECTORY.

SENIOR CLASS.

Name	City Address	Home Address
C. L. Abbott	385 S Hermitage Ave.	Ft. Seneca, Ohio.
Chas. Percy Aling	394 Marshfield Ave.	Blue Earth, Minn.
O. F. Allen	756 Jackson Blvd.	Mt. Vernon, Ill.
R. C. Aylward	206 S Wood St.	Black Earth, Wis.
Cecil V. Bachelle	58 Warren Ave.	Chicago.
Charles W. Bailey	42 Laflin St.	Hebron, Ill.
B. H. Bailey	226 Leavitt St.	Traer, Iowa.
J. Ralph Ballinger	511 Adams St.	Atchison, Kansas.
A. S. Barnes	356 S Hermitage Ave.	Granville, Ohio.
James H. Bartley	58 Warren Ave.	Albion, Mich.
John C. Beck	128 Oak St.	Chicago.
E. O. Benson	69 Clybourn Ave.	Chicago.
H. J. Betten	232 Lincoln St.	Orange City, Fa.
Hart Beyer	291 S Lincoln St.	Orange City, Ia.
Will. A. Birringer	42 Plum St.	Denver, Colo.
W. H. Boone	197 S Wood St.	Chrisman, Ill.
Wm. W. Bryant	460 W Adams St.	Madison, Wis.
P. B. Brockway	630 Washington Bvd.	Toledo, Ohio.
Fred C. Brown	215 Sebor St.	Chicago.
O. B. Brown	470 Adams St.	Chicago.
Louis F. Bucher	394 S Hermitage Ave.	Dayton, Ohio.
D. C. Budge	323 S Hermitage Ave.	Paris, Idaho.
S. C. Carver	413 Ogden Ave.	Chicago.
M. R. Charles	232 Lincoln St.	Ada, Ohio.
B. L. Clary	519 W Adams St.	North Bristol, Wis.
Geo. E. Clements	398 Marshfield Ave.	Crawfordsville, Ind.
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W. R. Cothern	354 S Hoyne Ave.	Guthrie, Ill.

Edward Cunat	106 W Eighteenth St.	Chicago.
Chas S. Curry	732 Jackson Blvd.	Clayton, Ill.
H. B. Cragin, Jr.	859 Washington Blvd.	Evanston, Ill.
L. F. Crain	756 Jackson Blvd.	Villa Ridge, Ill.
O. Dahms	295 Marshfield Ave.	Davenport, Iowa.
Karl H. Danielson	859 Washington Blvd.	Chicago.
J. W. Daugherty	875 Jackson—Flat J	Chillicothe, Ill.
H. E. Dearholt	528 Washington Blvd.	Milwaukee, Wis.
F. C. Dodd	732 Jackson Blvd.	Clayton, Ill.
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Francis Duncan	590 Adams St.	Chicago.
Harry Duncan	356 S Hermitage Ave.	Porterville, Cal.
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Geo. R. Fegan	280 Leavitt St.	Chicago.
Elmer Fessler	10 Lowell Place	Perry, Iowa.
David Fiske	291 Lincoln St.	451 Division St.
Jos. P. Flynn	236 Honore St.	Stillwater, Minn.
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John H. Foster	344 S Hoyne Ave.	Woodruff, Ind.
Frederick F. Fowle	213 Hoyne Ave.	S. Milwaukee, Wis.
A. L. Gagnon	123 Elburn Ave.	Beaverville, Ill.
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A. C. A. Gaul	439 S Lincoln St.	Chicago.
James S. Gaumer	343 S Paulina St.	Fairfield, Iowa.
Chas. G. Gibson	42 Laflin St.	Chicago.
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D. R. Gillies	707 Van Buren St.	Neenah, Wis.
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Joseph A. Guertin	802 Jackson Blvd.	St. Anne, Ill.
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Geo. W. Harding	187 Honore St.	Chicago.
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Robert B. Johnson	644 Harrison St.	Norfolk, Neb.
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Robert H. Michels	1007 W Harrison St.	Chicago.
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James M. Mitchell	42 Laflin St.	Pontiac, Ill.
Harry W. Morcom	701 Jackson Blvd.	Tower, Minn.
T. W. Morgan	41 Laflin St.	Dawson, Ill.

Lewis A. Moore	287 S Leavitt St.	Kewanee, Ill.
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C. J. Patton, M. D.	Cook County Hospital	Montreal, Canada.
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B. F. Simon	394 Marshfield Ave.	Wells, Minn.
Cecil E. Smith	606 Adams St.	England.
Chas. C. Stroup	602 Adams St.	LaGrange, Ind.

D. F. Stewart	3500 State St.	Chicago.
J. E. Smith	716 Van Buren St.	Deep River, Iowa.
Joseph F. Smith	733 Harrison St.	Valparaiso, Ind.
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Ralph T. Smith	574½ Congress St.	Villisca, Iowa.
Geo. O. Speirs	606 Adams St.	Hedrick, Iowa.
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Ira M. Washburn	34 Stanley Terrace	Rensselaer, Ind.
L. D. Wells	610 Congress St.	Kirkersville, O.
R. S. Wells	108 Honore St.	Butte, Mont.
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Justus V. White	Rush Medical College	Jerseyville, Ill.
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Wm. S. Wilcox	392 S Hermitage Ave.	Weyauwega, Wis.
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Robert Williams	535 Washington Blvd.	Carthage, Ill.
Geo. H. Willis	386 Oakley Blvd.	Chicago.
Chas. S. Woods	733 Harrison St.	Fanuersburg, Ind.
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Geo. F. Zerzan	772 Jackson Blvd.	Schuyler, Neb.

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Edward T. Alford	308 Ashland Blvd.	Waterloo, Iowa.
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Herbert L. Arzt	290 Marshfield Ave.	St. Paul, Minn.
Felix Ashcroft	353 Leavitt St.	Ashcroft, S. D.
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Ernest S. Baker	223 Hermitage Ave.	Otterbein, Ind.
Harry B. Bailey		Oak Park, Ill.
Jas. W. Barnebee	220 Marshfield Ave.	Fulton, Mich.
W. S. Bellows	308 Ashland Blvd.	Waukegan, Ill.
J. H. Biggar, Jr.	307 Ashland Blvd.	Chicago.

S. S. Blacklock	709 W Adams St.	Vergennes, Ill.
W. E. Blatherwick	291 S Lincoln St.	Rock Valley, Iowa.
Frederick S. Bowen	661 Jackson Blvd.	Eddyville, Iowa.
A. S. Bowers	670 Monroe St.	Cedar Falls, Iowa.
Raymond E. Bower	669 Jackson Blvd.	Chillicothe, Ohio.
D. H. Boyd	670 W Monroe St.	Wichita, Kas.
Frank P. Boyd	722 Jackson Blvd.	Lewiston, Minn.
L. Z. Breaks	442 W Congress St.	Crawfordsville, Ind.
Stanley J. Briggs	392 Hermitage Ave.	Dodgeville, Wis.
D. E. Broderick	511 Adams St.	901 E 13th St.
Oran A. Brown	670 W Monroe St.	Lenox, Ia.
M. Brundage	733 Jackson Blvd.	Norr Springs, Ia.
E. I. Bunker	325 Hermitage Ave.	Frederick, S. D.
Willard L. Burnap	588 W Congress St.	Clear Lake, Iowa.
Edward J. Carney	561 W Madison St.	Watkins, N. Y.
J. J. Carter	635 Jackson Blvd.	Burlington Jct., Mo.
Chas. A. Costello	649 Adams St.	Chicago.
O. U. Chenoweth	223 Hermitage Ave.	Otterbein, Ind.
Oscar Cleff	319 Lincoln Ave.	Chicago.
Cornelius J. Corboy	709 Adams St.	Valparaiso, Ind.
A. V. Corliss	Rush Medical College	LaGrange, Ill.
Roy H. Cox	635 Jackson Blvd.	Trenton, Mo.
J. Harry Crawford	325 Hermitage Ave.	Chicago.
John S. Crow	838 W Van Buren St.	Mosca, Colo.
John Crowe	442 W Congress St.	Peterboro, Ont., Can.
Edward Darrow	561 W Madison St.	West Superior, Wis.
Chester W. DeMott	670 Monroe St.	Independence, Kas.
S. C. Dickerson	726 W Lake St.	Austin, Tex.
James E. Donelly	221 Winchester Ave.	Terre Haute, Ind.
J. J. Dubs	749 Monroe St.	Chicago.
J. C. Dunn	394 Marshfield Ave.	Owen Sound, Ont.
A. C. Durkee	578 W Congress St.	Pontiac, Ill.
Chas. D. Early	670 Monroe St.	Springfield, Ill.
Ralph O. Early	308 Ashland Blvd.	Albia, Iowa.
Chester M. Echols	511 W Adams St.	Chicago.
Gregory J. Egan	308 Ashland Blvd.	Beloit, Wis.
W. T. Eignus	667 Adams St.	Forrest, Ill.
Geo. R. Ernst	991 Harrison St.	Watertown, Wis.
John Evers	524 W Congress St.	Bowling Green, O.
Jo. B. Ewers	325 Hermitage Ave.	Effingham, Ill.
C. G. Farnum	705 Adams St.	Elmwood, Ill.

Martin H. Fischer	3317 Union Ave.	Chicago.
F. A. Fisher	511 Adams St.	Oak Park, Ill.
J. G. Fisher	197 Wood St.	Indianola, Ill.
Lee N. Francis	639 Washington Blvd.,	Knoxville, Pa.
I. J. Franklin	140 Ashland Blvd.	Rush Med. College
H. L. Frazier	667 Adams St.	Atchison, Kas.
W. M. Freeman	237 Leavitt St.	Aurora, Ill.
Chas. B. Frisbie	310 Ogden Ave.	Grinnell, Iowa.
A. G. Fritsche	187 S Lincoln St.	Lomira, Wis.
John S. Fox	242 Winchester Ave.	Chicago.
L. Frank Garlock	796 Jackson Blvd.	Racine, Wis.
A. Cosmas Garvy	60 Lytle St.	Chicago.
J. W. Gething	187 S Lincoln St.	Battle Creek, Mich.
N. W. Getz	705 W Adams St.	Marshalltown, Ia.
Monroe M. Ghent	709 W Adams St.	Carterville, Ill.
William J. Griffin	775 W Polk St.	Clara, Iowa.
C. M. Gleason	511 Adams St.	Whitewater, Wis.
John A. Gosling	89 Park Ave.	Ottawa, Ohio.
C. W. Gould, Jr.	609 W Adams St.	Berea, Ky.
Morton K. Green	224 Winchester Ave.	Middleton, Wis.
W. V. Gulick	200 Ashland Blvd.	Chicago.
Robt. Hardie, Jr.	120 DeKalb St.	Chicago.
A. Havens	385 S Hermitage Ave.	Bushnell, Ill.
M. T. Heffernan	242 Winchester Ave.	Woonsocket, R. I.
W. A. Hemingway	500 W Oak Park Ave.	Oak Park, Ill.
Chas. A. Henry	73 Warren Ave.	Fostoria, Ohio.
M M. Hill	745 W Harrison St.	Edinburg, Ill.
O. W. Hinshaw	640 W Congress St.	Snow Hill, Ind.
F. Leroy Hubbard	489 W Adams St.	Virginia, Ill.
W. M. Hubbard	709 W Adams St.	Clark, Mo.
A. C. Johnson	688 W Adams St.	Mommouth, Ill.
Geo. M. Johnson	238 Winchester Ave.	Maquoketa, Iowa.
N. W. Jones	740 Congress St.	Salt Lake City, Ut.
W. D. Jones	284 Ashland Blvd.	Williamsville, Ill.
Abel W. Johnson	23 Ashland Blvd.	Ludsborg, Kas.
S. D. Kalayjian	28 N Sacramento Ave	Marash, Turkey.
T. Joseph Kaster	224 Winchester Ave.	Burlington, Iowa.
Michael Kenna	Cor. Clark and Van B.	1301 Michigan Ave.
Allen M. King	716 Jackson Blvd.	Jacksonville, Ill.
C. L. Kirtley	740 Congress St.	Salmon, Idaho.
Wm. A. Klingberg	966 W Harrison St.	Dillon, Kansas.

Bleeker J. Knapp	55 Laflin St.	Indiana.
T. J. Lamping	224 Winchester Ave.	Peoria, Ill.
S. L. Landauer	245 S Winchester Ave.	Lincoln, Ill.
H. R. Lathrop	677 W Monroe St.	Princeton, Ill.
Roy B. Leach	237 Leavitt St.	Joliet, Ill.
D. D. Leeper	634 Adams St.	Langdon, Mo.
Alfred T. Lees	661 Congress St.	Mondove, Wis.
Charles M. Linehan	709 W Congress St.	Dubuque, Iowa.
C. A. Lilly	193 Wood St.	Hiawatha, Kas.
C. O. Lind	10 Whiting St.	Chicago.
J. Lindguist,	362 Wells St.	Upsala, Sweden.
F. M. Link	206 Wood St.	Paris, Ill.
Chas. H. Loomis	640 W Congress St.	Merriam, Kas.
Geo. M. Luckey	685 Van Buren St.	Vinton, Ia.
Jay B. Lyn	951 Harrison St.	Harvard, Ill.
James B. Mahony	381 Chestnut St.	Chicago.
Ed. W. Marquardt	193 Wood St.	Addison, Ill.
J. A. MacDonald	533 Monroe St.	Union City, Ind.
D. S. MacKenzie	297 Marshfield Ave.	Wabasha, Minn.
W. L. McBride	308 Ashland Blvd.	Decatur, Ill.
T. H. McCarthy	71 DeKalb St.	Stoughton, Wis.
E. W. McCamish	52nd St. & Cot. Grove	Mineola, Texas.
J. A. McCaw	649 Adams St.	Plainfield, Ill.
Chas. R. McLean	607 W. Monroe St.	Princeton, Ill.
M. C. McMurry	385 S Hermitage Ave.	Shelbina, Mo.
Jerry H. Metzger	732 Jackson Blvd.	Oak Harbor, Ohio.
D. D. Monroe	207 Ogden Ave	Sterling, Col.
A. S. Morris, Jr.	120 S Pine Ave.	Austin, Ill.
H. N. Morrow	42 Laflin St.	Camptown, Pa.
Chas. H. Muhoney	293 Oak St.	Ft. Dodge, Iowa.
Alfred N. Murray	511 W Adams St.	Bloomington, Ill.
J. H. Mustard	640 W Congress St.	Abilene, Kas.
Walter Murray,	Presbyt'rn Hosp.	Norwich, Conn.
W. O'Dwyer	861 Jackson Blvd.	Dane, Wis.
Paul Oliver	514 W Congress St.	Chicago.
Otto R. Olsen	796 Jackson Blvd.	Winona, Minn.
P. H. O'Malley	649 Adams St.	Madison, Wis.
Joseph Otradovec	818 W 12th St.	7235 Union Ave.
Roy L. Owen	521 W Monroe St.	Burlington, Wis.
J. D. Overholser	45 Loomis St.	Coleta, Ill.
Harry K. Pangburn	89 Park Ave.	Mayville, Ky.

B. F. Parks	934 W Harrison St.	Viola, Ill.
R. W. Pence	238 Winchester Ave.	Maquoketa, Iowa.
John C. Petrovitsky	204 Lincoln St.	Cedar Rapids, Iowa.
J. H. Pittman	762 W Harrison St.	Roseville, Ill.
Chas. Pixley	861 Jackson Blvd.	Missoula, Montana
R. H. Porter	511 Adams St.	Glasgow, Ky.
M. Milton Portis	227 Loomis St.	Chicago.
Geo. W. Potter	861 Jackson Blvd.	Mitchell, S. D.
Ola Putman	515 W Adams St.	Marceline, Mo.
J. Wilson Ramsey	703 Jackson Blvd.	Aledo, Ill.
H. W. Rayner	395 Ogden Ave.	Chicago.
Charles F. Read	649 Adams St.	Oswego, Ill.
Chas. B. Rentz	685 Van Buren St.	Oxford, Iowa.
C. H. Risley	705 W Harrison St.	Cameron, Mo.
James J. Roach	5158 Princeton Ave.	Chicago.
C. S. Robbins	746 Jackson Blvd.	Chicago.
Ray F. Rogers	618 Monroe St.	Springfield, Ill.
M. H. Ross	55 Laflin St.	Evansville, Ind.
H. A. Runkle	45 Loomis St.	Lisba, Iowa.
S. F. Russell	593 W Van Buren St.	Macomb, Ill.
Leslie Rutherford	746 Jackson Blvd	Peoria, Ill.
Thoralf Z. Sandbo	353 Leavitt St.	La Crosse, Wis.
A. G. Schroeder	2231 N Marshfield Ave.	Chicago.
Wm. K. Schroeders	678 Adams St.	Dubuque, Ia.
Chas. D. Sidle	71 Warren Ave.	Van Wert, Ohio.
Frederic H. Slayton	1044 W Monroe St.	Elmwood, Ill.
J. L. Smith	291 S Lincoln St.	Chicago.
R. Sonnenschein	20 St. John's Court	Chicago.
A. C. Soper, Jr.	3998 Ellis Ave.	Chicago.
J. D. Sternberg	800 Jackson Blvd.	Albany, Oregon.
D. O. Storie, Jr.	593 W. Van Buren St.	Chariton, Iowa.
Fred B. Strauss	642 Harrison St.	Bismarck, N. D.
B. L. Stinson	593 Van Buren St.	Pontiac, Ill.
T. W. Stumm	709 Adams St.	Fredonia, Ill.
Harry N. Swezey	746 Jackson Blvd.	Marion, Ind.
J. R. Tobin	224 Winchester Ave.	Gilberts, Ill.
H. M. Trankle	593 Monroe St.	Bloomer, Wis.
Albert R. Trapp	245 Winchester Ave.	Lincoln, Ill.
G. T. Trommald	800 Jackson Blvd.	Tacoma, Wash.
R. B. Tubbs	524 Congress St.	Emerson, Iowa.
F. F. Tiscker	100 Laflin St.	Lincoln, Neb.

W. A. Uehren	108 Honore St.	Aurora, Ill.
Wm. J. Uppendahl	108 Honore St.	Dalton City, Ill.
Frank W. VanKirk	25 Hazel St., B. P.	Janesville, Wis.
H. G. Vaughan	223 S. Hermitage Ave.	Chicago.
Hymen L. Weber	410 S. Wood St.	Springville, N. Y.
Claudius W. West	1044 W. Monroe St.	Galesburg, Ill.
W. B. Wherry		River Forest, Ill.
C. M. White	114 Honore St.	Alexandria, Minn.
W. H. Whitsitt	222 Marshfield Ave.	Preemption, Ill.
L. Wilder	348 Ogden Ave.	Gridley, Ill.
Hugh Wilkinson	802 Jackson Blvd.	Seneca, Kas.
F. S. Williams	578 W Congress St.	Villisca, Iowa.
W. A. Wright	108 Honore St.	Laramie, Wyo.
Jake J. Zaun	879 Jackson Blvd.	Pewaukee, Wis.
Jno. J. Zaun	879 Jackson Blvd.	Pewaukee, Wis.

SOPHOMORE CLASS.

Name	City Address	Home Address
James L. Adams	202 S. Robey St.	Pittsfield, Ill.
W. R. Agate	638 W. Congress St.	Kenosha, Wis.
C. P. Ailsen	550 Ashland Blvd.	Evansville, Ind.
Jno. M. Anderson	732 Jackson Blvd.	Greenville, Ohio.
Robt. Ansley	1015 W Harrison St.	Westville, Ind.
Harry F. Boatman	257 Hermitage Ave.	Mattoon, Ill.
W. R. Ball	204 S Lincoln St.	Mitchell, S. D.
Thos. H. Barlow	204 S Lincoln St.	Drayton, N. D.
J, H. Barnebee	220 Marshfield Ave.	Mendon, Mich,
Charles W. Barnes	Garfield Park	Thomasville, Ga,
C. C, Barrett	6640 Normal Ave,	Sigourney, Ia,
Howard J, Barney	423 Winchester Ave.	Floyd, Wis.
Russell T, Barry	429 E Huron St.	Chicago.
Dane H. Bath	854 W Polk St.	Oshkosh, Wis.
Frank C. Bawden	768 W Congress St,	Pontiac, Ill,
Robert C, Beers	3403 Paulina St.	Chicago.
J, B, Beeson	44 Plum St,	Marshalltown, Ia,
R, L. Benjamin	467 S Paulina St.	St. Anne, Arizona.
Adelbert H. Benson	202 S Robey St.	Lake Park, Iowa.
John P. Benson	605 Jackson Blvd.	Peoria, Ill,
Harry C, Bentley	754 Jackson Blvd.	South Bend, Ind.
C. O. Bernhardi	458 W. Adams St.,	Rock Island, Ill.
Jno. M. Bernhardt	204 S Lincoln St.	Cassville, Wis.
A. E. Bessette	3844 S Wood St,	Chicago.

Bruce T. Best	703½ Monroe St.	Arlington Hts., Ill.
T. S. Blakesley	721 W Harrison St.	Rock Island, Ill.
F. W. Blatchford,	367 LaSalle Ave.	Chicago.
S. A. Bolender	616 Monroe St.	Chicago.
J. G. Bostwick	617 Washington Blvd.	Mishawaka, Ind.
C. F. Briggs	422 S Leavitt St.	Sullivan, Ind.
J. A. Britton	131 Ashland-Flat 303	Sidney, Neb.
Chas. P. Brown	701 Congress St., Ft. S	Des Moines, Iowa.
J. P. Bruce	550 Jackson Blvd.	Chicago.
Ralph H. Buckland	223 Hermitage Ave.	Dartford, Wis.
W. H. A. Burke	423 Winchester Ave.	Walker, Ia.
Fred G. Burtis	1077 Taylor St.	Chicago.
Jas. H. Carnelley	644 W Harrison St.	Joliet, Ill.
J. R. Carney	628 W Congress St.	Logansport, Ind.
G. S. Chapin	593 Van Buren St.	Windside, Neb.
F. E. Clough	738 Jackson Blvd.	Deadwood, S. D.
James P. Collins	5055 Fifth Ave.	Chicago.
John B. Colwell	371 Lincoln St.	Bloomington, Ill.
Elliott V. Converse	714 W Monroe St.	Palestine, Texas.
Earl G. Coverdale	406 Jackson Blvd.	Decatur, Ind.
H. H. Dally	462 Jackson Blvd.	Kempton, Ill.
C. E. Daniels	713 Congress St.	Marion, Iowa.
Geo. S. Darby	768 Congress St.	Otterbein, Ind.
Chas. Geo. Davies	714 W Adams St.	Spring Green, Wis.
John W. Davis	633 W Van Buren St.	Defiance, Ohio.
Wm. Dolan, Jr.	593 W Monroe St.	Bloomer, Wis
Wm. J. Dorlon	423 Winchester Ave.	Las Arimas, Col.
Arthur D. Dunn	662 Adams St.	Chicago.
Nelson Edgar	51 Seeley Ave.	Holstein, Iowa.
Fred A. Eickelberg	215 S Lincoln St.	Juneau, Wis.
Berry F. Elfrink	Boiler Room	Aurora. Ill.
S. C. Emley	166 S. Wood St.	Gt. Bend, Kan.
Walter Everly	25 Lexington St.	Goldthwaite, Texas.
Wm. H. Falker	4433 Drexel Blvd.	Chicago.
Oliver J. Fay	589 W Congress St.	Postville, Iowa.
Geo. R. Fithian	688 Adams St.	Newton, Ill.
E. S. Fitzmaurice	253 Hermitage Ave.	Stokesville, N. D.
F. D. Fletcher	825 W Congress St.	Auburn, Ill.
Clarence M. Frye	1707 Harrison St.	Morrison, Ill.
Philip A. Fox	458 W Adams St.	Milwaukee, Wis.
John M. Frick	494 Jackson Blvd.	Ottawa, Ohio.

S. S. Fuller	625 Jackson Blvd.	Hoopeston, Ill.
James H. Fowler	692 Monroe St.	McCook, Neb.
E. Gates	703½ W Monroe St.	Marengo, Iowa.
Robert Gay	202 S Robey St.	Madison, Wis.
W. T. Gleason	708 W Monroe St.	Gladstone, Mich.
Benj. Gleeson	617 Washington Blvd.	Springfield, Ill.
J. Goldberg	162 12th Pl.	Chicago.
J. A. Graham	2124 Wilcox Ave.	Chicago.
F. Greenbaum	5137 Calumet Ave.	Chicago.
A. L. Graiczunas	574 N Ashland Ave.	Li Thuania, Russia.
C. E. Harris	589 W Congress St.	Grumell, Iowa.
Edwin O. Harrold	369 S Lincoln St.	Roll, Ind.
W. M. Hartman	644 W Harrison St.	Arcadia, Wis.
John C. Hastings	253 Hermitage Ave.	Bailey, Iowa.
A. A. Heinemann	858 Van Buren St.	Chicago.
A. J. Helton	688 W Adams St.	Atwood, Ill.
A. N. Henneberry	170 Warren Ave.	Dalton City, Ill.
W. E. Hitchuck	697 Jackson Blvd.	Chicago.
J. M. Hogan	708 Monroe St.	Waunakee, Wis.
Chas. O. Hoiby	242 Grand Ave.	Chicago.
O. Holinges	587 W Chicago Ave.	Chicago.
T. J. Houlihan	708 Monroe St.	Charter Oak, Iowa.
Doc. C. Hoyt	310 Park Ave.	Chicago.
L. J. Hughes	350 Ashland Blvd.	Decatur, Ind.
Richard Huizenga	204 S Lincoln St.	Rock Valley, Ia.
Charles D. Hulbert	709 W Congress St.	Chicago.
Gus. B. Jackson	533 W Monroe St.	Owensboro, Ky.
Arnold E. Johnson	291 Lincoln St.	Red Wing, Minn.
D. P. Johnson, Jr.	1036 Jackson Blvd	Muscatine, Iowa.
H. B. Johnson	560 W Polk St.	Pomona, Kas.
Edward J. Kieffer	796 W Polk St.	Mineral Point, Wis.
John W. Kistner	356 Hermitage Ave.	Elkhart, Ind.
John Kremer	277 S Robey St.	Grand Rapids, Mich.
W. A. Ladwig	843 Jackson Blvd.	Appleton, Wis.
Adolf Lekemeyer	212 S Lincoln St.	Germany.
Ralph L. Larsen	483 Webster Ave.	Chicago.
Emanuel J. Leavitt	512 W Van Buren St.	Brooklyn, N. Y.
S. E. Lincoln	628 Monroe St.	Famestown, N. Y.
C. A. Lofgren	638 W Congress St.	Dayton, Iowa.
N. J. Lowry	460 W Adams St.	Cresco, Iowa.
F. W. Luhman	222 Winchester Ave.	Manitowoc, Wis.

N. J. Lund	752 Jackson Blvd.	West Superior, Wis.
Harry H. McCarthy	709 Adams St.	Dubuque, Ia.
R. S. McCaughey	688 W Adams St.	Hoopeston, Ill.
W. C. McDonough	709 Adams St.	Woodburn, Iowa.
J. E. McGovern	170 Warren Ave.	Highland, Wis.
Edw. H. McIntyre	292 S Robey St.	Streator, Ill.
W. F. McManus	1397 12th St.	West Superior, Wis.
Max Malkin	742 W 12th St.	Chicago.
James B. Maple	422 S Leavitt St.	Sullivan, Ind.
Philip H. Matthei	134 Canalport Ave.	Chicago.
F. K. Meade	596 W Adams St.	Salina, Kas.
C. H. Meissner	3850 62nd St.	Chicago.
Jas. A. Merriman	156 Emerson Ave.	Selma, Ala.
Walter D. Merritt	110 Honore St.	Janesville, Wis.
Geo. Michell	348 Ogden Ave.	Gridley, Ill.
D. B. Miller	506 W Monroe St.	Greencastle, Ind.
Geo. D. Miller	429 Claremont Ave.	Cadillac, Mich.
S. S. Morse	223 Hermitage Ave.	Ripon, Wis.
Edward W. Mueller	640 Adams St.	Manitowoc, Wis.
Alex T. Nadeau	429 Claremont Ave.	Marinette, Wis.
H. S. Naramore	290 Marshfield Ave.	Mason City, Iowa
Oscar Olson	285 Ogden Ave.	Holdrege, Neb.
Jno. G. Oosterbeek	613 W 62nd St.	Chicago
John W Osborne	356 Hermitage Ave.	Rantoul, Ill.
R. P. Pearsall	625 Jackson Blvd.	Port Byron, Ill.
Julius F. Peppler	628 W Monroe St.	Muskegon, Mich.
C. E. Phillips	738 Jackson Blvd.	Sheboygan Wis.
W. L. Porterfield	221 Winchester Ave.	Cape Girardeau, Mo.
Ernst W. Potthoff	Oak Park, Ill.	12th & Cuyler Ave.
Hubert F. Prasch	350 Ashland Blvd.	Burlington, Wis.
F. H. Pugh	1399 W 12th St.	West Lebanon, Ind.
Edward Quick	537 W Adams St.	Cordova, Ill.
Walter R. Rhodes	221 Winchester Ave.	Neoga, Ill.
C. A. Richards	537 W Adams St.	Rhinelander, Wis.
M. O. Rickfort	539 Van Buren St.	Lake Mills, Wis.
Frank C. Robinson	644 Harrison St.	Waitsburg, Wash.
F. H. Roost	667 Adams St.	Jackson, Neb.
E. C. Rosenow	642 W Harrison St.	Montana, Wis.
W. G. Ross	489 W Adams St.	Peotone, Ill.
J. E. Schwendener	12 Warren Ave.	Milwaukee, Wis.
Russell F. Scott	625 Jackson Blvd.	Scott Land, Ill.

E. Schmidt	12 Warren Ave.	Marshfield, Wis.
Albert Schultz	800 Jackson Blvd.	Sleepy Eye, Minn.
Arthur F. Schulz	5128 State St.	Chicago
A. O. Shaw	494 Jackson Blvd.	Helena, Mont.
Stuart H. Sheldon	190 S Winchester Ave.	Madison, Wis.
J. R. Shuman	872 Jackson Blvd.	Chicago
Wm. A. Sim	708 W Monroe St.	Golconda, Ill.
Richard S. Slevin	605 W Jackson Blvd.	Peoria, Ill.
J. M. Sokol	708 Monroe St.	Onslow, Iowa.
J. Sonnenschein	2802 Archer Ave.	Chicago
W. C. Spangenberg	1332 Diversey Blvd.	Chicago
Wm. F. Spaulding	606 Ogden Ave.	Greeley, Col.
A. C. Spengler	37 Ewing Place	Chicago
O. E. Spurgeon	229 Honore St.	Muncie, Ind.
C. D. Strong	1026 Flournoy St.	Paxton, Ill.
Robt. B. Sweet	872 Jackson Blvd.	Hampton, Iowa
Roy W. Sykes	692 Monroe St.	Hamburg, Iowa
B. C. Tarnutzer	736 Jackson Blvd.	Portage, Wis.
M. N. Thayer	978 W. Harrison St.	Elnara, Ind.
G. R. Thomsen von Colditz	269 Lake View Ave.	Chicago
Samuel P. Tipton	350 Ashland Blvd.	Ft. Scott, Kas.
Thos. W. Torney	714 W Adams St.	Madison, Wis.
W C. Van Nuys	665 W Congress St.	Osawatomie, Kas.
F. C. Wallis	701 Congress St.	Pickering, Mo.
B. A. Warren	229 Honore St.	Secklerville, Wis.
Ernest O. Weber	131 Ashland Blvd.	Valparaiso, Neb.
Jos. M. Welch	708 Monroe St.	Madison, Wis.
J. F. Wenglesky	4954 State St.	Chicago
Jas. I. Wernham	460 W Adams St.	Marengo, Ill.
D. H. Wherritt	562 N Clark St.	Chicago
Ernest Wood	2070 W Congress St.	Chicago
Rollin Woodyatt		Evanston, Ill.
A. C. Yoder	606 Ogden Ave., Ft. 5	Vincennes' Ind.
W. W. Yates	840 Congress St.	Chicago.

FRESHMAN CLASS.

Name	City Address	Home Address
E. M. Adams, Jr.	36 Madison Park	Chicago.
Maurice B. Altman	825 W Congress St.	Lincoln, Ill.
Edward G. Ahrens	600 Jackson Blvd.	Davenport, Ia.
Clark D. Baker	408 S Paulina St.	Minden, Neb.

Floyd M. Baldwin	641 W Monroe St.	Kendall, Wis.
Herbert F. Barnes	881 Jackson Blvd.	Elkhorn, Wis.
Leon F. Beall	1455 W Monroe St.	Chicago.
O. S. Behrentz	639 W Adams St.	Duluth, Minn.
Jno. M. Bernhardt	204 S Lincoln St.	Cassville, Wis.
W. A. Berry	246 S Lincoln St.	Unionville, Mo.
Leon M. Bowes	403 S Lincoln St.	Manston, Wis.
E. B. Bradley	321 Central av, Austin	Charles City, Ia.
Royal O. Broun	291 S Lincoln St.	Freeport, Ill.
John C. Bridgman	435 Oakley Blvd.	Darlington, Wis.
H. Otto Bruggeman	220 Ogden Ave.	Logansport, Ind.
Alva H. Bryan	706 Monroe St.	Portage, Wis.
Paul J. Burrell	1959 W Harrison St.	Freeport, Ill.
Harry J. Burns	206 S Lincoln St.	Princeton, Wis.
Russell R. Burt	1644 W Van Buren St.	Chicago.
W. R. Colderwood	119 Honore St.	Salt Lake City, Utah
Alpha J, Campbell	246 W Jackson Blvd.	Independence, Colo.
Chas. S. Campbell	345 E. Chicago Ave.	Ottawa, Kans.
Gardner S. Chapin	593 Van Buren St.	Winside, Neb.
Eugene Clancy	24 Kendall St.	Chicago.
Fred R. Clapp	1675 Monroe St.	Albion, Ind.
G. Morgan Clarke	3857 Vincennes Ave.	Chicago.
Chas. W. Cleveland	951 W. Harrison St.	Chicago.
T. O. Cole	329 Hermitage Ave.	Edinburgh, Ill.
A. E. Connor	433 S Paulina St.	Caledonia Minn.
F. J. Corey	7701 Normal Ave.	Chicago.
Edwin G. Cox	675 Jackson Blvd.	Craig, Mo.
H. T. Cummings	2978 Wabash Ave.	Chicago.
John Darst	329 Hermitage Ave.	Galesburg, Ill.
Ralph Dart	386 Warren Ave.	Rock Island, Ill.
Francis E. Dent	116 Honore St.	Alexandria, Minn.
S. B. De Pree	39 York St.	Sioux Center, Ia.
John E, Derbyshire	408 S. Paulina St.	Cammack, Ind.
James E. Dewey	596 W Adams St.	Stockton, Kans.
Arnim C. Ecke	213 Winchester Ave.	Fond du Lac, Wis.
F. V. Evert	255 S. Hermitage Av.	Middleton, Wis.
W. L. Freeman	327 Hermitage Ave.	Midway, Wis.
Wm. B. Fehring	609 W. Congress St.	Virginia City, Mont.
R. Ralph Ferguson	232 S. Lincoln St.	Hastings, Neb.
Herman Fischer	242 S. Lincoln St.	Pardeeville, Wis.
Edward Paul Fick	284 Ashland Blvd.	Chicago.

M. W. Fitzpatrick	499 Grand Ave.	Decatur, Ill.
Robert E. Fox	308 Ashland Blvd.	Bryn Mawr, Pa.
Andrew Ganzevoort	233 Ogden Ave.	Hospers, Ia.
L. E. Gasche	357 Ogden Ave.	Wooster, Ohio.
Cyrus A. Gardner	187 Honore St.	Kendallville, Ind.
ClarenceG.Goodwin	661 Congress St.	Decatuer, Ill.
Thos. O. Greig	365 Oakley Blvd.	Chicago.
T. C. Haecker	291 S Lincoln St.	
Halvor Hanson	896 N Kedzie Ave.	Manitowoc, Wis.
O. R. Harris	740½ W Adams St.	Meriden, Ill.
Thomas A. Hogan	153 Goethe St.	Chicago.
Henry O. Hogan	291 Lincoln St.	New Richland, Minn
A. F. Hamman	628 Congress St.	Merdosia, Ill.
Geo. F. Harding	881 Polk St.	Brigham City, Utah
Randolph S. Harter	202 S. Robey St.	Wenona, Ill.
Wm. Huckin.	740½ W Adams St.	Ogden, Ill.
Walter B. Huey		Evanston, Ill.
Louis C. Jacobson	641 W Monroe St.	Elroy, Wis.
Edward H. Jacobs	166 S Wood St.	Burlington, Wis.
L. M, Johnson	594 W VanBuren St.	Annawan, Ill.
Henry L. Jouker	233 Ogden Ave.	Vriesland, Mich.
Simon Keller	187 S Lincoln St.	Sauk City, Wis.
Harry C. Kariher	614 W Monroe St.	Champaign, Ill.
A. J. Kelsey	428 Leavitt St.	Monterey, Ind.
Guy C. Kissnaman	600 Jackson Blvd,	Ashland, Ohio.
John C. Knox, Jr.	709 W Congress St.	Claysville, Pa.
Wilhelm Krieger	115 S Wood St.	Bellplaine, Minn.
LashbrookB. Laker	650 Van Buren St.	Salt Lake City, Utah
George A. Landes	740½ W Adams St.	Arkansas City Kans
Eoward F. Law	206 S Lincoln St.	McDowell, Ill.
WalterH.Livermore	593 Van Buren St.	Smith Center, Kan.
Harvey H. Lord		Evanston, Ill.
Wm. A. Lurie	1385 W 22nd St.	Chicago.
J. Hamilton McCoy	714 Monroe St.	Beattie Kans.
O. W. McClusky	81 Troop St.	Traverse City, Mich
O. A. McIntosh	721 W Van Buren St.	Elburn, Ill.
S. J. McNeill	881 W Jackson Boul.	Hopkinton, Iowa
John J. McShane	48 Powell Ave.	Toesdale, Ill.
E. F. Maginn	804 Jackson Blvd.	Chicago.
Thos. A, Mahoney	979 12 St. Blvd.	Joliet, Ill.
John W.Marchildon	308 Ashland Blvd.	Thebes, Ill.

Marvel, L. M.	1017 W Harrison St.	Waynesville, Ill.
John B. Matthews	707 Harrison St.	Moscow, Idaho.
O. F. Mau	Rush Medical College	Wheaton, Ill.
O. P. Merrill	714 W Monroe St,	Elgin, Ill.
Geo. P. Miller	116 Edgemont Ave.	Chicago
W. J. Mitchell	1095 Taylor St.	Escanaba, Mich.
Ira Miltimore	709 W Congress St.	Janesville, Wis,
Harry C. Mofett	343 Paulina St.	Clinton, Iowa
D. G. Monahan	714 W Adams St.	East Troy, Wis.
John J. Mray	1259 W 15th St.	Chicago
George H, Nash	223 S Hermitage Ave.	Holyoke, Mass.
Geo. B. Noyes, Jr,	255 S Hermitage Ave.	Waupaca, Wis.
B. H. Oberembt	265 S Lincoln St.	Ashton, Wis.
Orville Olson	620 Congress St.	Axtell, Neb.
C. L. O'Brien	525 W Congress St,	Chicago.
E. J. O'Brien	979 W 12th St.	Chicago.
Adelbert L. Palmer	628 W Congress St.	Logansport, Ind.
Don. H. Palmer	327 Hermitage Ave.	Seattle, Wash.
P. W. Panushka	453 W. Van Buren St.	Chicago
T. W. Parsche	1719 Briar Place	Chicago
Ralph P. Peairs	256 Ashland Blvd.	Normal, Ill.
Louis M. Pearson	568 Washington Blvd.	Madison, Wis.
S. R. Perkins	524 W Congress St.	Mishawaka, Ind.
Dyer J. Powell	220 Ogden Ave.	Logansport, Ind.
Wm. B. Rehling	237 S Lincoln St.	Waterloo, Ill.
Hans A. Reinhard	460 W. Adams St.	Milwaukee, Wis.
Phillip A. Reppert	733 Jackson Blvd.	Burlington, Iowa
J, A. Roberts	706 Monroe St.	Portage, Wis.
H. H. Robinson	698 Fullerton Ave.	Chicago
E. J. Rowan	372 W Adams St.	Chicago
E. H. Ruediger	644 W Harrison St.	Arcadia, Wis.
Harry A. Runars	215 S Lincoln St.	Oregon, Wis.
Rex A. Schlag	187 S Lincoln St,	Prairie du Sac, Wis.
Rolond E. Schoen	628 W Congress St.	Mayville, Wis.
Jno. D. Scouller	593 Van Buren St.	Pontiac, Ill.
Chas. E. Scullin	43½ Seeley Ave.	Peoria, Ill.
W. B. Schwuchow	1543 Bradley Place	Chicago
Ernest D. Seymour	223 S Hermitage Ave.	Dwight, Ill.
A. E. Sherman	191 Honore St.	Appleton, Wis.
Carl F. Siefert	752 Jackson Blvd.	Milwaukee, Wis.
Jos. F. Slepicka	788 S California Ave.	Chicago

Robt. A. Smith	115 S Wood St.	Rock Springs, Wyg.
Clinton E. Spicer	242 S Lincoln St.	Rio, Wis.
B. F. Strand	1624 W Adams St.	San Francisco, Cal.
Ira K. Staudt	265 S Lincoln St.	Union City, Ind.
H. Galen Snyder	802 Jackson Blvd.	Seneca, Kas.
Jesse G. Strobridge	234 Forest Ave., O. P.	Elgin, Ill.
Thomas J. Swisher	284 Marshfield Ave.	Eliza, Ill.
J. D. Taplin	230 S Lincoln St.	Belvidere, Ill.
Emil F. Tholen	237 Lincoln St.	P't Washington, Wis.
V. C. Thomas	1095 Taylor St.	Traverse City, Mich.
Frank L. Tuffley	253 Hermitage Ave.	Boscobel, Wis.
John B. Ury	633 Van Buren St.	Defiance, Ohio.
Ernest Van Cott	119 Honore St.	Salt Lake City, Ut.
Harold Van Cott	119 Honore St.	Salt Lake City, Ut.
John H. Van Dyke	116 Honore St.	Alexandria, Minn.
John Vork	277 S Robey St.	Holland, Mich.
Bernard E. Walpert	594 S Sangamon St.	Chicago
Geo. A. Ward	641 W Monroe St.	Shelbyville, Ill.
John M. Weiss	386 Warren Ave.	Rock Island, Ill.
Nels. Werner	837 W Harrison St.	11360 Michigan Ave.
Albert Woodcock	489 Adams St.	Byron, Ill.
R. E. Worley	256 Ashland Blvd.	El Paso, Ill.
Eugene Y Houng	284 Marshfield Ave.	Glasgow, Ky.

NEWS ITEMS.

A new invention is expected to assist in diagnosis of obscure ailments of the stomach, rendering laparotomy unnecessary. A camera is introduced into the stomach and exposed for a few seconds. A small incandescent lamp attached to it supplies the necessary light for photographing. No pain is experienced. When the camera is introduced the patient easily holds his breath, preventing movement of the membrane until a picture is obtained.

Medicine can be easily administered to animals by a new device consisting of a rigid cylinder with a spring mechanism inside to discharge a medicated pellet after the instrument is inserted in the animal's mouth.

Some years ago Dr. S. Weir Mitchell, of Philadelphia, was troubled with a nervous ailment, induced, it was thought, by his unflagging energy in his two lines of work. His condition became so serious that he went abroad, thinking that a change of scene and a giving up of labors might tend to make a well man of him. In Paris he suffered an attack of the old trouble and deemed it well to call upon a certain specialist with whose name he was familar as being that of a man famous on both continents.

He visited the physician purely as a patient and did not even give his name.

During the conversation preliminary to the examination the Parsian said: "I see you are an American."

"Yes," answered Dr. Mitchell, "I am an American."

"Which is your home city?" he was asked and replied, "Philadelphia."

The French physician held up both hands and exclaimed: "What, a man come to me here in Paris to be treated for a nervous ailment when his own home is in Philadelphia, where resides the most famous nerve specialist in the world!"

"To whom do you refer?" asked the author.

"Ah, you have never heard? Why, to Dr. S. Weir Mitchell of course."—*Atlanta Constitution.*

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DIAGNOSIS AND PROGNOSIS OF HEART MURMURS.

BY CHARLES J. WHALEN, M. D., LL. B., CHICAGO.

By memorizing the following condensation of heart murmurs and the results produced thereby, a student can readily diagnose all murmurs produced within the endocardium and at the same time he will be fairly well prepared to make a reasonable prognosis in each case. All murmurs occur with or take the place of the first or second sounds of the heart.

Systolic:—Mitral regurgitation; Aortic obstructive; Tricuspid regurgitation; Pulmonary obstructive (rare).

Diastolic:—Aortic regurgitation; Mitral obstructive, (Presystolic); Tricuspid obstructive, (Presystolic); Pulmonary regurgitation, (rare).

Order of Frequency:—Mitral regurgitation; Aortic regurgitation; Mitral obstructive; Aortic obstructive; Tricuspid regurgitation; Tricuspid obstructive; Pulmonic obstructive; Pulmonic regurgitation.

Order of Dangers:—Aortic regurgitation; Mitral obstructive; Mitral regurgitation; Aortic obstructive; Tricuspid regurgitation; Tricuspid obstructive; Pulmonic obstructive; Pulmonic regurgitation.

Mitral regurgitation (systolic) is caused by the flow of blood from the ventricle to the auricle. It is loud, and is heard at the left apex and is transmitted outward and backward being often distinctly detected at the angle of the scapula. It is frequently accompanied by a purring thrill. Pulse (if regular) is soft, small, weak and intermittent.

RESULTS: More or less congestion of lungs, liver and kidneys; the venous obstruction often causes pulsation of the larger veins and liver; and bulbous enlargement of the terminal phalanges of the fingers and toes. It rarely terminates in sudden death.

AORTIC OBSTRUCTIVE: (systolic) the affected valves obstruct the aortic opening during systole so as to prevent the blood flowing freely out of the ventricle. The murmur will be heard at midsternum opposite the fourth costal cartilage being transmitted upward to the right second cartilage and sometimes even to the carotids. The sound diminishes as the stethoscope is moved toward the apex, pulse hard, wiry, resisting and sometimes visible, in the later stages is soft and slow.

RESULTS: Often there is little suffering for years on account of the compensatory hypertrophy of the left ventricle; sooner or later, however, breathlessness and palpitation supervene, the arteries are unfilled and syncopic and epileptiform attacks come on.

TRICUSPID REGURGITATION: (systolic) is usually secondary to mitral disease and is caused by the flow of blood from the right ventricle to the right auricle. It is superficial, soft and of low pitch and is heard with greatest intensity over the lower part of the sternum at its left border between the fourth and sixth ribs. It is never audible above the third rib or to the left of the apex-beat; is transmitted to the region of the xiphoid cartilage upward to the right from one to two inches.

RESULTS: Visceral derangement due to impeded venous return; cardiac dyspnea and palpitation and marked irregularity in the force and rhythm of the heart; with enlargement of the liver and spleen and venous stasis in the stomach as evidenced by dyspepsia, nausea, vomiting and hematemesis; secretions from the kidneys is scanty, dark colored, of high specific gravity, often containing albumen and casts. Passive cerebral hyperemia is marked by headache, dizziness and vertigo; jugular and epigastric pulsation are its characteristic physical signs. It is said to be the most serious of all valvular lesions and is liable to terminate in sudden death.

PULMONIC OBSTRUCTIVE: almost invariably congenital, the affected valves obstruct the pulmonary openings during systole so as to prevent the blood flowing freely out of the right ventricle; the murmur will be heard directly over the pulmonary valves, it is loud, soft and superficial and is diffused towards the left shoulder.

AORTIC REGURGITATION: (diastolic) here the aortic valves close imperfectly permitting reflux of blood from aorta; it is heard most clearly at the level of the fourth interspace at midsternum; it is transmitted downward to the ensiform cartilage and sometimes even into the carotids. Pulse peculiar, being sudden, sharp and jerking (shaky), the second sound of the heart is muffled and indistinct.

RESULTS: The patient suffers from deficiency of blood in the arterial system, is pallid and liable to syncopic angina-like attacks, and is apt to die suddenly.

MITRAL OBSTRUCTIVE: (diastolic) is due to the impediment to the passage of blood from the auricle to the ventricle; it is most distinct at the left apex and is not transmitted.

RESULTS: This obstruction is a very grave matter and is followed by hypertrophy and dilatation of the left auricle, clotting in the appendix, edema of the lungs, distension of the right side of the heart and intensification of the second sound at the base; the heart's action is irregular, and sometimes terminates in sudden death.

TRICUSPID OBSTRUCTIVE: (diastolic) is rare as a primary lesion. The few cases recorded have always been secondary to lesions of the mitral valve; the murmur is presystolic and heard at the lower portion of the sternum just above the xiphoid cartilage.

RESULTS: obstruction of the entire systemic venous circulation; dilatation of the right auricle; cyanosis, palpitation and dyspnea, together with headache, dizziness and vertigo; visceral enlargements in the abdomen and general anasarca, scanty and albuminous urine. It is one of the most serious complications of mitral stenosis and the patient is apt to die suddenly.

PULMONIC REGURGITATION: (diastolic) the few authenticated cases on record have been either congenital or due to injury; murmur is soft and heard over the pulmonary valves and transmitted slightly downward.

RESULT: marked dilatation and hypertrophy of the right ventricle.

ASEXUALIZATION AS A POSSIBLE PROPHYLACTIC OF THE INCREASE OF CRIME, IDIOCY, AND INSANITY.

BY DANIEL R. BROWER, A. M., M. D., LL. D. CHICAGO.

Professor of Mental Diseases and Therapeutics, Rush Medical College;
Professor of Diseases of the Nervous System, Woman's Medical College, etc.

The century just about closing has witnessed marvelous advancements in medicine. It was just before its beginning, in 1793, that Pinel, in France, Tuke, in England, and Rush, in America, began the great work of reforming the treatment of the insane. They were followed by a long line of physicians eminent in psychiatry, and, as the outgrowth of their teaching, no one today regards the insane as either possessed of the devil on the one hand, or the special recipients of divine favor on the other; and everywhere we find hospitals for the insane, well equipped with every necessary appliance for the successful treatment and the judicious care of these unfortunates,

It was in 1836 that Dubois wrote his classical treatise on idiocy, followed soon by the admirable work of Esquirol, Duboisin, Seguin, and, as a consequence of their labors and that of their successors, today the medicopedagogic treatment of the feeble-minded is carried on in every civilized community. It was in 1892 that Gall in his researches wrote "that the measure of culpability, and the measure of punishment (of criminals) cannot be determined by a study of the illegal act, but only by a study of the individual committing it." He pointed out with the skill of an expert the stigmata of degeneracy with which these delinquents abound. He was in advance of his generation, but in due time the efforts of Lombroso, Benedict, Ellis, Wey, and a score of other eminent physicians have by their observations established beyond all question the fact that the habitual criminal is an abnormal man. The abnormality manifests itself physically and psychically in the criminal physiog nomy, in stigmata of degeneracy, in anomalies of the muscular, the sensory, the respiratory and circulatory systems, in moral insensibility, lack of forethought, low grade of intelligence, vanity, egoism, and emotional stability, and as a consequence of their labors the criminal is beginning to receive that scientific treatment to which he is as well entitled as his near relatives, the idiot and the insane.

These great advancements that stand out so prominently in the history of the century are exceedingly creditable to the medical profession—a profession that has in all ages been characterized by an unselfish devotion to the welfare of humanity. But while we can congratulate ourselves on these things, we are in the midst of them brought face to face with serious problems that demand our most careful consideration for their proper solution.

In the olden times the frequency of the death penalty, the horrible tortures of the criminals, the gross neglect and inhuman treatment of the insane and the idiots prevented the rapid increase of these abnormals. But with that wise care and humane treatment that are so manifest today, and the practical abolishment of the death penalty, we find an increase of them out of due proportion to that of the population.

In crime in the United States census reports show the following increase:

Year.	Prisoners.	Ratio to Population.
1850	6,737	1 in 3,442
1860	19,086	1 in 1,647
1870	32,901	1 in 1,171
1880	58,609	1 in 855
1890	83,329	1 in 757

These statistics have been disputed by some eminent criminologists for the reason that they regard the reports prior to 1880 as unreliable, and indeed question those of 1880. But the statistics of the State of Pennsylvania confirm the results of 1880 and 1890.

	1880.	1890.	Per cent. Increase.
Population of State	4,282,891	5,248,574	22.5
Inmates of penal institutions	5.449	7,340	34.7
Defective classes	6.070	9,712	60

The records of the police department of Chicago prove the same thing by considering the number of arrests for 10 years.

Year.	No. of Arrests.	Year.	No. of Arrests.
1884	39,434	1889	48,119
1885	40,998	1890	62,230
1886	44,505	1891	70,556
1887	46,505	1892	89,833
1888	50,432	1893	96,976

The Board of City Magistrates of New York still further confirm the National Statistics.[1]

In the annual report it is shown that the population of the city has increased 33⅓% in the last 10 years, while crime has increased more than 50%.

In the presence of these figures, while we may differ as to the ratio of increase, yet I think none can differ as to the fact of an increase out of all reasonable proportion to population. The showing is as bad for idiocy. The United States Census reports are as follows:

Year.	Number.	Ratio to Population.
1860	18,865	1 in 1,400
1870	24,527	1 in 1,270
1880	76,895	1 in 700
1890	95,000	1 in 600

The statistics of insanity are no more encouraging.

Year.	Number.	Ratio to Population.
1850	15,610	1 in 1,485
1860	23,999	1 in 1,310
1870	37,432	1 in 1,031
1880	91.997	1 in 600
1890	106;485	1 in 570

The following from England, Ireland, and Scotland is added testimony:

Year.	Number.	Ratio to Population.
1862	55,525	1 to 530
1872	77,013	1 to 450
1882	98,871	1 to 350
1892	117,336	1 to 330

These tables furnish us with abundant evidence of the increase of crime, idiocy and insanity out of due proportion to the increase in population, and it becomes us to inquire, what are the etiologic factors that are producing this blot on our civilization? The study of crime, I think, will speedily bring us to the conclusion that the habitual criminal is largely the product of vicious parentage.

Dugdale, in his study of the Juke family, demonstrates this.[2] He found a line of 1,220 descendants, the offspring of one criminal, in 5 generations, consisting of criminals, prostitutes, vagabonds and paupers with a few honest workers.

McCullough,[3] in the study of the Ben Ishmael family, identifies 1,750 criminals and paupers, and 121 prostitutes, the offspring of this single rascal. And Professor Pellman, of the Bonn University, has recently studied the offspring of Frau Ada Jurke, and found 709, of whom 7 have been convicted of murder, 76 of other crimes; 141 were professional beggars, 61 lived on charity, and 181 were prostitutes.

These 3 remarkable examples are by no means exceptions to the great rule of heredity in crime. Heredity bears the same relation to idiocy, and the students of these defectives differ only as to the percentage.

Peterson[4] puts this heredity at from 40 to 50 per cent., and my own observations and studies would lead me to suppose that this is sufficiently low. In insanity hereditary influences largely predominate over all other causes. Alienists differ simply as to percentage. Folsom[5] puts this percentage at 75, which is not unreasonable. I regret that I have been unable to obtain any statistics of the number of insane who are annually discharged from our American hospitals. The annual discharges from the hospitals of Great Britain are about 15,000, and the total number of insane in our American institutions is much the same as in those of Great Britain, so that we may safely infer that the number of discharges in this country is much the same. Our Illinois hospitals for the insane discharge about 900 annually. Those persons, who have made more or less complete recovery, and are considered sufficiently well to be discharged, soon become merged into the general community. The married resume their marital relations; the single not infrequently enter into the matrimonial state, and so far as these persons are concerned, the results to themselves may have been unexceptional, but how about their posterity? The number of feebleminded discharged from the [illegible] Assylum for the Feebleminded for 6 years has been

202, and how many of these have propagated their kind we have no means of determining.

The United States census of 1880 shows that 10 per cent. of all the feebleminded then in the country were living in some kind of marital relations. Admitting, then, that crime, idiocy and imbecility are the result of the tyranny of organization, usually the result of a vicious inheritance, and that they are perpetuating their kind, it seems to be imperative that some method of correction should be devised. Every effort of our modern civilization, by the great care which it throws around them, tends irresistibly to their accumulation, and no one, I think in this enlightened age would have this careful attention in the slightest degree modified.

There is one remedy that, if it could be enforced, would result in no harm to these defectives, but in great good to the community, and that is asexualization, and the form of asexualization recommended is by ligating the vasa deferentia and the fallopian tubes. Castration would accomplish the same results, but this makes a great deformity. Ligating the vasa deferentia makes no deformity, and we have reason to suppose that the testicles play some important part in general metabolism; that they have some physiologic function. not clearly understood, besides the secretion of semen, and their removal would do something more than prevent the propagation of the species.

Castration is followed by complete loss of sexual power, ligation of the vasa deferentia only by a diminution of this power, and it is as effectual in preventing propogation. Ovariotomy would asexualize, but it is a dangerous operation. and, like the testicles, the ovaries besides that of ovulation, have some important function in metabolism to perform. The ligation of the vasa deferentia not only does not result in a deformity, but is not a dangerous operation, and the same is true of the litigation of the tubes if done through the vagina. These operations for the criminal class might exclude the accidental type of criminal; for idiocy it should include all classes; and for insanity it might be limited to the degenerative types, using the term in the broad sense of Kraeplin. At the Asylum for Idiots at Winfield, Kans., where castration has been used on inveterate masturbators, much benefit has resulted, and this would lead us to suppose that at least some of this class of defectives might derive permanent benefit. The cessation of the menses in the insane sometimes produces a favorable change in their mental symptoms, and sometimes a cure, so that we can hope for permanent benefit from the operation in some of these patients. But be this as it may, unless it can be shown that serious injury would result from the processes herein described, the fact that they will succeed in diminishing the rate of increase of criminals, idiots, and degenerate insane demands for them on our part a deliberate consideration for the protection and benefit of society at large.

[1] Crime and Criminals: Dr. Christison.

[2] Dugdale: "Study in Criminal Pauperism and Heredity." G. P. Putman & Son.

[3] Boise: "Prisons and Paupers," page 176.

[4] Church: "Mental and Nervous Diseases," page 176.

[5] Mental Diseases, "A System of Practical Medicine by American Authors." 5, page 113.

RELATION OF MENTAL DISEASE AND RESIDENCE IN AN ASYLUM OR SANITARIUM TO LIFE EXPECTANCY.*

By Harold N. Moyer, M. D., Chicago.
ASSIST. PROF. OF MEDICINE IN RUSH MEDICAL COLLEGE.

As a preliminary, we may briefly consider why life insurance examinations are made. Their only purpose is to furnish the basis of a contract between the insured and the insurer. The examination does not aim to be critically accurate in reference to diagnosis; its only purpose is to determine the probable longevity of the person seeking the insurance. The opinion of the medical man is based upon the presence of disease in the insured, his hereditary tendency and the relation of environment to the development of disease in the particular person.

Tradition has handed down a blank form which, with few variations, the physician is to fill up; in part this relates to the questions which the person seeking insurance is to answer, and in part to the data which the physician gathers from the examination of the patient. These examination blanks bear a fairly close resemblance to each other, and undoubtedly they are useful in securing some regularity, and to some extent they are valuable in directing the examiner's attention to certain specific facts in the family and personal history of the individual to which importance may be attached. Examiners may sink the spirit of the examination in adhering to the letter of the law as laid down in the blanks. It has seemed to us that better results might be achieved by less specific directions regarding the examination. If the statement of the patient regarding his family and personal history is deemed essential as a basis for the contract, then the one who wishes to effect the insurance might fill it out as part of the application, a copy of this being sent to the medical man with a request that he pass upon the applicant, thus giving to the physician the widest latitude in determining the desirability of the risk. We question whether, under such a system, more accurate results would not be reached than under the present use of specific questions and directions, which, after all, do not emphasize the most important consideration, namely: the judgment of the physician as to the health, resistance to disease, and probability of life in the individual.

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*Read at the December meeting, Chicago Society of Life Insurance Examiners.

Many of the blanks now in use have a question relating to residence of the insured in an asylum or sanitarium. It is difficult to understand just why such a clause was inserted, as almost all of the information to be gotten from it is fully covered by other questions in the application. The question is, what conditions determined the residence in an asylum or sanitarium. The mere fact of having been a resident in such an institution is of no value in determining life expectancy, but the conditions which sent the person to such an institution may have the very highest bearing upon the question of life expectancy.

We shall not discuss the relation of certain organic diseases which frequently take people to institutions for treatment, as it is apparent that the varying pathologic conditions underlying such diseases determine their relation of life expectancy. Thus, disease of the stomach, gastro-intestinal tube, liver and its appendages, kidneys and genito-urinary tact, as well as those of the pulmonary and circulatory apparatus, which so frequently send persons to an institution for treatment, are to be dealt with upon the same lines as though those disorders had occurred without residence in an institution. What is said of these disorders would also apply to the organic disorders of the nervous system. It is apparent that any of the progressive degenerations of the central and peripheral nervous system determines a marked lessening of life expectancy. It would seem as though these disorders, which come on insiduously, and in their early stages are difficult of recognition, would furnish a frequent source of error in determining life expectancy. Such, however, does not seem to be the case, the reason of which, I think, is found in the extreme chronicity of these affections, and insurance effected in the early stages of these disorders is, in the majority of cases, terminated by the inability of the individual to pay premiums long before the disease terminates life. If it were not for the extreme chronicity of these affections, we feel sure that their early recognition would be one of the most important problems confronting the insurance examiner.

There is a class of sanitarium habitues, if we may use the term, and it is to these that I would especially direct attention, in whom the conditions of their residence in a sanitarium does not increase the risk that on the contrary may actually diminish it. I speak now of the large class of variously labeled neuropaths, hysterics, neurasthenics, and hypochondriacs, which furnished such a large contingent of the sanitarium population. It is true that in the great bulk of these patients nutrition is defective, circulation is generally not good, there is a tendency to constipation, and the appetite is capricious. While these may be recognized as tendencies toward disease, they are often greatly mitigated by the great care which these individuals take of themselves. For the most part their habits are unexceptional; they protect themselves from the cold, their functional incapacities do not permit them to over-work and the slightest sign of any disturbance of the vegetative functions is sufficient to bring them under medical direction.. If these affections are considered, it is apparent why the life expectancy of many of these individuals is greater than that of the vigorous middle-aged man who eats too much, works too hard, drinks a little, and generally exposes himself to the vicissitudes of an active, exposed life, with all of its accompanying dangers.

The hypochondriac is in a measure protected from many of the causes of ill-health to which many of the community are exposed. The very nature of his malady makes him careful of himself; in a sense therefore hypochondria may be said, in absence of organic disease, directly to favor longevity. This is in accord with practical experience, which has long since determined the length of life in this class of persons.

Hysteria, unless in its graver forms, does not materially tend to shorten life, and perhaps the same may be true of neurasthenia, though here a more guarded prognosis must be given, and it is necessary to distinguish between those individuals who should properly be termed neuropaths and who have pr sented the symptoms of neurasthenia since early life, and those who have acquired the affection. The prognosis of longevity is good only in the latter class.

At this point I desire to speak of the relation of neurasthenia and hysteria to the organic nervous affections. Buzzard long since pointed out the relation which those affections bear to the organic nervous diseases. It is not at all uncommon to meet with distinct hysterical or neurasthenic symptoms as a prodromal stage of many severe organic degenerations. Where the symptoms do not precede the organic disease, they may accompany it, thus often misleading one as to a correct diagnosis. The recognition of one or more symptoms that are clearly functional in character does not justify us in excluding organic disease, but the mere presence of this functional disturbance should lead to the closest possible examination in order that organic affections may be excluded. We are well aware that this is just the opposite view from that actually held, and that physicians frequently argue that because one or more symptoms of hysteria are present, that necessarily the entire symptom complex is to be classed under this head. An extended study of this class of disorders will, we are confident, confirm the views of Buzzard, that organic affections often have hysterical concomitants.

Relation of mental disease to life insurance examination forms a most interesting picture. Insanity usually forms such a prominent event in the history of an individual that it will rarely escape observation by even the most casual examiner, particularly if the mental alienation has been of a degree sufficient to send a person to an institution for the insane.

Insanity in all its varieties tends to shorten life, but there are certain forms of mental disease in which life expectancy is but little impaired. There is no institution of any age which does not point with some degree of pride to patients who have reached three score and ten, or perhaps four score years, and whose mental trouble may have covered a period of from a quarter to half a century. Nevertheless there is no form of insanity which does not decrease the power of resistance of disease and which does not tend to shorten life. The prognosis in mania and melancholia, so far as life is concerned and the reasoning powers, is generally good. A certain proportion of these cases die in their first attack, but on the whole the percentage is small, and a very large proportion of them recover their reason, and are able to return to their ordinary occupations. To a short residence in the asylum and recovery, if they seek life insurance, no distinct line can be drawn which shall include all cases, but rather, every case must be accepted or rejected after a careful study of all of the circumstances. The most important of these are the length of time which has elapsed since the attack, its severity and duration, the heredity, habits, occupation, and environment.

While the prognosis in a given case of this simple insanity is usually good, it is to be remembered that there is a great tendency to recurrence, and it is this latter which usually determines that they are undesirable as life insurance risks. Not only is each attack attended with danger of a fatal termination, but each predisposes to another. The extreme chronicity of mania and melancholia, as well of the terminal dementias into which they pass, makes them comparatively insignificant as insurance risks. Even if insured, the disabling effect of the disease is sufficient to prevent the premiums long before the insurance accrues.

It seems to me that this element of chronicity is not sufficiently taken into account in passing life insurance risks. While we must admit that the simple insanity tends to shorten life, yet a thousand cases taken together would show a most favorable balance, as the vast majority of them would have the contracts terminated by an inability to meet the premiums, and in this way a favorable balance would be shown as compared with the thousand who maintained their full earning capacity up to within a short time before death.

We must never forget that mental disease is in many cases a secondary condition, dependent upon the disease of the viscera, autointoxication and disturbances of nutrition. Therefore the general and other causes must be given the fullest possible study in every case. While the insanities must generally be regarded as tending to shorten life, there are cases in which it has come on as the result of acute disease and has disappeared with that condition. Thus there are certain post-typhoidal, post-puerperal and other toxic conditions, accompanied by mental disease, in which there is no tendency to recurrence, and which are of very little importance from the standpoint of life insurance.

Epilepsy is a disease which shortens life, but here again marked chronicity makes it of less importance than it otherwise would be. It is doubtful if any one should be considered incurable who is a confirmed epileptic; this rule should apply whether the type is of the *petit* or *grand mal.* Occasionally attacks occur at wide intervals, which may admit of the question of insurability being open to discussion. A history of one or two convulsions occurring in early life, and in which years have elapsed without a recurrence, ought not to render an individual uninsurable, as the difficulty of diagnosis in these cases is very great, and there is always a doubt remaining as to whether such convulsions were truly epileptic.

We have reserved until the last the discussion of the most important of all diseases, namely, paretic dementia. Unlike the other insanities, the attack of this disease is almost certainly fatal, and its course is marked by some degree of rapidity, death usually taking place in from one to five years, the average duration being about three.

In the typical case of paretic dementia there are exceptional delusions, extraordinary activity combined with a recklessness in business affairs. It is not uncommon for men in the early stages of this disorder to effect large amounts of insurance as an expression of their exceptional mental state and one of the symptoms of this beginning disorder. These delusions of grandeur form part of the typical description of the disorder, but we should never forget that it is less than half of the total number of causes that present the typical features described in the books. The larger number of cases begin with atypical mental mental manifestations, and in many of them depression and a general neurasthenic state precedes for a considerable time the more prominent symptoms of the disorder. It is the exceeding variability of this disease that gives it such a pronounced interest from the standpoint of life insurance. There is nothing in the questions contained in the ordinary insurance blank that would direct one's attention to this condition. The disease is distinctly not hereditary, syphilis, alcoholism, and mental worry and strain being the most important contributing factors; but we all know how difficult it is to get a correct statement of these conditions, even when the patient is anxious to furnish us all the information in his power. We feel safe in urging that in every case where extraordinary amounts of insurance are sought for, or if the amounts are beyond what is generally supposed to be well within the means of the individual asking for it, and such person is at the middle period of life, that the possibility of paretic dementia should always occur to the examiner. It should always have full consideration and a careful inquiry made into the immediate history of the applicant, such an inquiry being especially directed to his business habits, and a marked change of conduct should be carefully looked for.—(*Med. Rev.*)

The Corpuscle

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Communications relative to advertisements and subscriptions ($1.00 yearly to undergraduates) should be addressed and remittances made by money order, draft or registered letter, to Norman W. Judd, Business Manager, 528 Washington Boul. The CORPUSCLE will be glad to receive news, etc., concerning, or of interest to, alumni.

MEMBERSHIP IN THE ALUMNI ASSOCIATION OF RUSH MEDICAL COLLEGE is obtainable at any time by graduates of the College, providing they are in good standing in the profession, and shall pay the annual dues, $1.50. This fee includes a subscription to The CORPUSCLE for the current year. This journal is the official organ of the Association.

Dues and all communications relating to the Association should be sent to
JOHN EDWIN RHODES, M. D., Sec'y. and Treas., 34 Washington St., Chicago

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The football team, and the football management deserve great credit. The past season has been a successful one from an athletic as well as financial standpoint. But most noteworthy of all is the step taken towards putting our athletic relations upon a pure amateur basis. In a recent issue of the CORPUSCLE, in a statement signed by Professor Bevan, the advisory faculty member, it was shown that the game scheduled with the team from one of our sister institutions was cancelled because of professionalism, after it had been clearly shown that the accusation was just and true. All lovers of pure amateur athletics in college welcome such a spirit—and they all trust that the precedent now established, will be rigorously followed out in the seasons to come.

To Mr. Paul Brown, who devoted much of his time in the successful effort to give the team systematic coaching, great thanks are due. The victories of the team speak for the efficiency of his work.

Throughout the entire season peace and harmony have prevailed among the players and between players and manager, a happy condition that has not been marked in past years.

At the last meeting of the Corpusle Board Mr. Walter Murray resigned the position of Business Manager. This step was made necessary we are sorry to say, because Mr. Murray has decided to leave college. Mr. N. W. Judd, formerly connected with the Corpuscle, has again associated himself with it, as Mr. Murray's successor. Mr. Judd's experince along these lines makes his election as Business Manager speak for itself.

As the result of the competition for vacancies on the editorial board, Mr. Francis Wickes Blatchford, Mr. Henry Colgrove Bentley and Mr. Edward William Quick all of the Sophomore class were selected. Mr. Bently will have charge of the college subscription department.

With this number The Corpuscle appears in a new dress. The change will be a permanent one—and we hope that the new appearance will meet with the approval of our subscribers.

Attention is called to the announcements in the advertising pages.

CORRECTIONS IN STUDENT DIRECTORY,

SENIOR CLASS.

Name	City Address	Home Address
R. A. Bachman	630 Washington Boul.	Alleghany, Pa.
J. R. Hawkins	Rush Medical College.	Sioux Falls, S. D.
W. H. Sheldon	630 Washington Boul.	Madison, Wis.
H. A. Watson	630 Washington Boul.	Martin's Ferry, O.
	JUNIOR CLASS.	
L. M. Francis	630 Washington Boul.	Knoxville, Pa.
F. W. Van Kirk	25 Hazel Ave. Buena Pk.	Janesville, Wis.
	SOPHOMORE CLASS.	
Stuart Sheldon	630 Washington Boul.	Madison, Wis

The name of C. H. Mulroney should appear in the Senior instead of Junior list—and that of J. H. McCoy in the Sophomore instead of Freshman.

RUSH MEDICAL SOCIETY.

Professor J. C. Webster has been instrumental in taking steps toward the organization of the Rush Medical society, to be founded and conducted along the same lines as similar organizations at the other large medical colleges in the world.

Active preparations for the meetings are in progress. There is reason to believe that Prof. William Osler of Baltimore will come to Chicago in the near future for the purpose of delivering the opening address at the first scientific meeting.

Seniors and Juniors desirous of becoming members should see the following Committee on Organization before Feb. 15, 1900:

Juniors.	Seniors.
R. F. Rogers.	O. A. Dahms.
J. S. Fox.	J. F. Smith.
T. J. Lamping.	Wm. Healy Jr.

THE DIAGNOSIS OF INCIPIENT PHTHISIS.*

By J. H. Salisbury, A. M., M. D.

Professor of Internal Medicine, Chicago Clinical School; Assistant Professor of Medicine and Chemistry, Rush Medical College.

Probably no diagnosis that the practitioner is called upon to make is of graver moment, affecting as it does not only the health and comfort of the patient, but also his financial interests to an unusual degree, since a positive decision involves a change of climate, with its accompanying disturbance of business and increase in the expense of living. On the other hand the possibility of cure depends very largely upon an early diagnosis. The clinical picture of phthisis is made up of several pathologic factors, each having a distinct influence upon the course of the disease. We have the original infection with the tubercle bacillus causing both local and general symptoms; we have also an early derangement of the digestive tract, with accompanying impairment of nutrition, and frequently an intoxication from poisons generated in the gastro-intestinal tract; we have infection with the pyogenic organisms leading to destruction of lung tissue and marked systemic poisoning. It is important that the diagnostician be able not only to name the disease, but also to appreciate the importance and influence of these various factors.

The first suggestion that I would make in regard to the early diagnosis of phthisis is that we should be on the lookout for its occurrence. That tuberculosis is a very common disease is evident, not only from the fact that a large proportion of the deaths occurring in any community is caused by it, but from the fact that autopsies reveal many instances of healed tuberculosis. A large proportion of these escape recognition by the physician, and it is probable that some cases of tubercular disease heal so perfectly as to escape recognition even upon the post-mortem table. We may quote with approval the words of Dr. Taylor of St. Paul (*Journal of Tuberculosis*, April, 1899): "Suspect every chronic case of harboring

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A Clinical Lecture delivered at the Chicago Clinical School, August 8, 1899.

tuberculosis until its innocence has been established." We should bear in mind the sources and channels of infection, because if we are aware of the danger of infection we shall more readily discover the first indications of the malady. Diseases of the mucous membranes, especially the chronic catarrhs of the respiratory tract, should be objects of suspicion. In this connection I would call especial attention to the tubercular character of many cases of adenoids of the naso-pharynx. Dr. Beck (*Deutsch, Med. Wochenschrift,* No. 9, 1899) found that out of thirteen cases of adenoid hypertrophy of the nose, twelve gave a positive reaction with tuberculin. If this disease is so frequently tubercular, it is evident that it may, in many cases, be the starting point of tuberculosis of the lungs. The frequency of tubercular pleurisy should also be borne in mind. Beck found that 73.2 per cent. of cases of pleurisy reacted to the tuberculin test. Every case of pleurisy ought, therefore, to be most carefully watched during convalescence for the manifestations of incipient phthisis. The lymphatic system should be carefully examined. The digestive tract should receive most careful attention. It is often the case that infection of the organism with tuberculosis shows most clearly the derangement of the digestion before other evidence is available. Every chronic digestive disorder should arouse suspicion lest it be a part of a more widespread affection caused by tuberculosis. The frequency of tubercular infection through the gastro-intestinal tract should also be borne in mind. Attention has frequently been called to the danger of children acquiring tuberculosis from infected milk, but the similar risk undergone by adults, when they consume much milk in its raw state, should not be lost sight of. The frequent sequence of phthisis upon acute diseases, such as typhoid fever, influenza, etc., may be partly due to the large consumption of milk in these diseases.

Passing now to symptoms indicative of the established disease, due note should be taken of the temperature, the pulse and general condition, especially as indicated by loss of weight. A regular rise of temperature, especially in the evening, is a suspicious circumstance. Hemorrhage from the lungs is almost invariably the precursor of phthisis, so that its importance as a positive sign is very great.

We may classify the signs elicited by an examination of the chest in two groups, viz., first those indicating the physical condition of the lungs, and second, those which indicate a disturbance in the functions of these organs. Thus we have a group of signs which, taken together, indicate a consolidation of the lungs. These signs are dulness on percussion, increased vocal fremitus, high pitched and prolonged expiration and increased vocal resonance. When these signs are found together with the usual symptoms, the diagnosis of phthisis may be considered as established. But it must be remembered that in themselves they establish nothing more than the fact of consolidation and this may be due to other causes.

Moreover, when these signs are present we must consider the disease well advanced and the diagnosis cannot be properly called an early one. These signs usually accompany each other, but they are produced in different ways and they cannot be expected to be always of equal intensity or distinctness. One may be more prominent in one case for one cause, and another for another reason in a second case. Dulness on percussion, when present, is evidence of some kind of consolidation, but in some cases it does not occur when we might expect it. For instance, if a layer of emphysematous tissue intervenes between tubercular nodules and the chest wall, the dulness due to the tuberculosis may be masked by the resonance of the emphysematous lung, so that if we relied upon dulness as a necessary sign we might fall into error. It must be remembered also that the percussion note is modified by the direction of the blow so that if the stroke be directed toward the trachea, the resonance of this tube may conceal a slight dulness in the lung. The dulness due to tuberculosis in the early stages is slight, and requires careful manipulation to bring it out satisfactorily. The regions above the clavicles and the supraspinous and interscapular regions behind should be most carefully examined as it is in these regions that dulness has its earliest manifestations. The examination of the posterior regions of the chest should never be neglected in a case of suspected phthisis.. The two sides of the chest should be compared with each other, region by region, taking care that the percussion should be made in the same manner, with the same force, and at the same period of respiration in each case. Vocal fremitus is elicited by placing the fingers upon the chest and asking the patient to speak, when a peculiar thrill is felt if the lung is consolidated.

Upon auscultation the diagnostician should seek to determine precisely the character of the sound, in its various properties of duration, pitch and quality. While the adventitious sounds called rales are of importance and when heard of a striking character, they should give place in importance to the less marked, but more significant changes in the breathing. In consolidation of the lung the inspiration is raised in pitch, and the expiration, scarcely audible in health, is raised in pitch and prolonged. A slight degree of this change constitutes bronchovesicular breathing, and can sometimes be heard to a slight extent at the right apex in normal chests. The respiratory murmur is apt to be very weak in phthisis and this may be a very suggestive sign in early cases. The voice sounds are exaggerated and raised in pitch. The slight character of the changes in respiratory sounds in early phthisis should be borne in mind. The importance of careful instruction in the physical diagnosis of the chest can not be overrated when it is remembered that in this disease in many cases the condition has passed beyond the stage in which cure is possible before either patient or physician thinks it necessary to consult an expert diagnostician.

Next to the evidences of consolidation come those which indicate a catarrhal process in the lungs. As symptoms of this state we have cough and local pain in the chest, together with the expectoration of mucus or pus. In exceptional cases this may contain shreds of pulmonary tissue. By auscultation we may obtain evidence of this pathologic process in the shape of rales which in phthisis are usually of the moist variety, and are heard both in inspiration and in expiration. Sometimes rales are not heard until the patient is made to take a deep breath, when areas are opened up, which before were entirely quiescent. The significance of rales is limited to confirming the diagnosis of a bronchial catarrh which may or may not be tubercular.

Indeed, the combined signs of consolidation and apical catarrh may be produced by a catarrhal pneumonia of non-tubercular origin which may be cleared up in a short time, leaving no trace of its existence. It is, however, very rare that such a combination of signs deceives the careful diagnostician.

We have, in conclusion, to speak of two unequivocal signs which should be used in cases in which they can be made available. The first of these is the examination of the sputum for tubercle bacilli. In cases of miliary tuberculosis, and in cases of phthisis, in which the bacilli are imbedded in the tissues, we can not obtain positive information by this means, but must wait until the bacilli appear in the sputum. We should hesitate to make a negative decision on a single examination, where other symptoms give ground for suspicion, but should repeat the examination until satisfied that the bacilli can not be found.

The use of tuberculin injections has not been accorded the place as a diagnostic procedure that its merits seem to warrant. This is partly due to its failure as a therapeutic measure, and partly to the fact that the use of too large doses has caused a fear of spreading the disease throughout the body by the liberation of tubercle bacilli, which have been rendered innocuous by enclosure in inflammatory products. That this fear is unfounded is shown by the fact that notwithstanding its use by veterinary surgeons in innumerable cases for diagnostic purposes, no instances of aggravation of tubercular diseases have been reported.

Says Professor Koch: "The apprehension that, following the reaction, the tubercle bacilli might be unfettered and transported into healthy parts of the body has proved to be futile in the many thousand cases of injections made into cattle for the purposes mentioned. This fully agrees with my own experience in more than a thousand cases in which tuberculin was used for the early diagnosis of tuberculosis. Here, too, in not a single case could the slightest indication pointing to an unfettering of the tubercle bacilli be observed." (*Deutsch, Med. Wochenschrift*, April, 1897.) In regard to the value of tuberculin as a diagnostic agent, Dr. F. W. White concludes that an absence of a reaction indicates almost universally an absence of tuberculosis, and the occurrence of a reaction indicates the presence of tuberculosis in more than four times out of five. The exceptions include cases of lepra, syphilis. and actinomycosis. In these cases the reaction is usually slight. In cases of syphilis it is possible that the syphilis is complicated with tuberculosis. Before making the test the temperature of the patient should be taken once in two hours for one or two days. In case of considerable febrile disturbance the indications of the test cannot be relied on. The injection should be given preferably at night. The injection should be made into the loose subcutaneous tissue between the shoulders, and should a local inflammatory reaction occur the rise of temperature may be due to this inflammation and the test must be regarded as unsuccessful. The initial dose should be 0.001 gm. of the crude tuberculin and the reaction should occur in from 18 to 24 hours. If the first injection is not followed by a reaction another dose of 0.0025 gm. should be given at the end of several days. If no reaction follows the second dose a third of 0.005 and a fourth of 0.01 should be given. If no reaction occurs after the fourth dose, the patient may be regarded free from tuberculosis. The reaction is both general and local. The general reaction consists of rise of temperature from one or two degrees up to four or five, headache, sense of constriction in the chest, rapid pulse, nausea, and at times diarrhea.

The local reaction is manifested by increased congestion about the tubercular region, giving rise to roughened breathing, sore joints, tender enlarged glands, etc.

Injections of salt solution and of certain proteids, such as peptones, may cause malaise with rise of temperature, but they do not produce the local reactions of tuberculin. The local reaction must therefore be considered the most characteristic of tuberculosis. The tuberculin test is most sensitive in the early stages of the disease, and should be reserved for those cases in which doubt exists after the use of the ordinary means of diagnosis.

GENERAL SURGICAL ANÆSTHESIA AND ANÆSTHETICS.

DR. ERNEST J. MELLISH, RUSH, '86, (*Medicine*)

The author sums up a paper on this subject with the following propositions: 1. Chloroform almost invariably kills by its effect primarily upon the circulatory system, and ether by its effect primarily upon the respiratory system. There probably are exceptions to both of these rules; consequently hair-splitting discussions on this point are unpractical and useless. 2. In anæmia of the medulla the patient should be placed in the head-down position. In sudden paralytic dilatation of the right heart, as after several deep inhalations of chloroform, the heart should be rhythmically compressed by squeezing the chest; or the patient placed temporarily in the feet-down posture to empty the heart, artificial respiration being constantly maintained. 3. Anæsthetics act directly or indirectly upon all the tissues, interfering profoundly with metabolism; and they tend to produce degenerative changes in the tissues, especially those of the vital organs. Of the anæsthetics in general use, chloroform is probably most dangerous in this respect. 4. Deductions based upon laboratory experiments are apt to be deceptive, and should be accepted with the greatest caution in regard to sick human beings, unless they agree with conclusions based upon clinical investigations. 5. As a rule, ether produces less circulatory depression than chloroform. It causes dilatation of arterioles and increased capillary circulation, thereby insuring a good blood supply to the circulatory and respiratory centers and to the heart muscle; consequently these systems are in less immediate danger with ether than with chloroform. 6. Cocainizing the nasal mucous membrane to antidote certain bad effects of anæsthetics is not a commendable practice. 7. On account of the reduction of body heat by anæsthetics, they should be administered in a warm room, and the patient should be protected from loss of heat so far as practicable by proper covering of the body, by application of artificial heat, and by protection from dampness of the skin. An excessively high room temperature will do harm by adding heat depression to anæsthetic—and operation—shock.* 8. Ether, when properly administered, is no more liable to produce nephritis than chloroform, perhaps not as much so. The changes produced in the kidneys by ether are as rule temporary, while those caused by chloroform are apt to be more persistent. 9. Most of the pronouncedly dangerous effects of ether, and to a less extent of chloroform, upon the kidneys are due to poor preparation of the patient, faulty administration, bad after-treatment, or all of these combined. 10. Postanæsthetic nausea is best prevented by preparation and after-treatment which favor normal physiological tonus, with especial reference to emunctories. Gastric lavage at the termination of anæsthesia, followed by vinegar inhalation, will in the great majority of cases prevent serious disturbance from nausea. 11. The danger from hemorrhage is no greater with ether than with chloroform, perhaps not so great, since the bleeding which occurs from the effects of ether is primary and is more certainly provided against; while the circulatory depression and the vaso-motor constriction due to chloroform to a gteat extent prevent primary bleeding and lead indirectly to later hemorrhage: 12. The safety margin between sufficient chloroform for anæsthesia and the lethal dose is much narrower than it is with ether. 13. Patients should be well fed with easily digested and nonbulky food to within a few hours preceding anæsthetization, and should be allowed water to within two or three hours of it. If this plan is followed, shock will be less and elimination of the anæsthetic will be more rapid, and less harm is likely to accrue to the emunctory organs. For the same reasons water should be given as liberally as practicable after anæsthesia. 14. Routine methods in selecting anæsthetics should be avoided so far as practicable, the anæsthetic being selected according to the conditions present in the individual case. 15. Any anæsthetic, but especially ether, should be given with the greatest caution in the presence of special susceptibility to acute bronchial or pulmonary affections. 16. Further clinical investigation in the use of nitrous oxide is desirable and necessary, in order to establish its status in relation to surgery; but its general employment is not practicable. 17. The majority of inhalers on the market are bad· An inhaler made on the principle of the Esmarch chloroform mask is the cleanest, safest, and best for ether as well as for chloroform. However, the "open method" of administering ether is not practicable in the tropics, at great altitudes, or in open-air military surgery, on account of too rapid diffusion. 18. The ordinary tongue forceps is a barbarous instrument and is often barbarously used. 19. The mouth gag can usually be dispensed with; its use is often positively dangerous, from forcing the base of the tongue against the pharynx. 20. The post of anæsthetist is second only in importance to that of the operator, and the selection of an anæsthetist should be made with great caution where possible. *No person who has not a wholesome fear of anæsthetics can be trusted to administer them.* Beware of one who believes any anæsthetic to be "perfectly safe." 21. The anæsthetist should gain the complete confidence of the patient as to his ability and carefulness, so that the latter's mind will be at rest on these points. 22. Patients who greatly fear anæsthesia are the ones likely to give the more trouble to the anæsthetist. 23. Other things being equal, the intelligent afid educated take anæsthetics better than those of low intellect. 24. The patient should be kept as free as possible from unnecessary noise and other disturbance during the induction of anæsthesia. 25. The pupillary reflexes constitute the best guide to the presence or absence of surgical anæsthesia. 26. The anæsthetist should watch carefully the pupils, pulse, respiration, and the color and condition of the skin, depending upon no single symptom as a danger signal. 27. The patient should be carefully watched from the beginning of the anæsthesia until fully restored to consciousness. 28. When anæsthetics are properly administered patients seldom struggle. 29. Noisy breathing during anæsthesia should be the exception, as it generally means faulty administration. 30. The minimum amount of anæsthetic should be given consistent with the production and maintenance of the desired degree of anæsthesia. 31. Compression of the phrenic nerve will, if properly done, usually control retching and kindred symptoms occurring during anæsthesia. 32. The use of drugs preceding and during anæsthesia should be avoided save where positively indicated, and if resorted to they should be used with the greatest care. It is best to depend almost wholly upon other means for the prevention of syncope or for resuscitation. 33. Anæsthetic mixtures are in general less safe than the "straight goods." One cannot know the relative proportion of the different components that the patient actually inhales. 34. Partial or "talking" anæsthesia is advisable in some cases, but should be avoided in delicate or sensitive patients, especially for prolonged operations unless the anæsthetic is taken quietly and with apparent abolishment of pain sense. 35. Finally, the subject of anæsthetics should be throughly treated in medical colleges, and each student required to conduct a number of anæsthesias under the supervision of an expert.—*N. Y. Med. Jour.*

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*The researches of Dr. Robert Coleman Kemp and Dr. W. H. Thomson, published in our issues for November 18th and 25th and December 2d, appear to directly controvert this proposition.

COLLEGE NOTES.

An examination in Junior medicine was held recently.

John Tobin will Captain the Rush football team next season.

Baumgarten, 1901, who was called home last term by the death of his father, has returned to college.

Dr. H. B. Cook, '94, of Miles, Iowa, visited in the city recently and spent a month with us.

Dr. R. F. Werner, '99, was married to Miss Agnes Keeth, of Eau Claire, Wis., on Nov. 15, 1899.

Dr. M. L. Harris, '82, Chicago, is favored with an abstract of one of his recent papers, in the *Indian Med. Record*, Calcutta, for October 4.

Dr. Frank R. Reynolds, '84, Eau Claire, Wis., has just been made vice-president of the Inter-County Medical Association.

Dr. E. R. Hering, '99, came down from his Wisconsin home for Thanksgiving and a few days in Chicago.

Prof. A. D. Bevan, at a meeting of the Chicago Medical Society, recently showed a woman of 32 years in whom he had resected the rectum for a stricture of about ten years' duration. The entire rectum was removed and the sigmoid stitched down into the external sphincter.

Dr. C. D. La Grange, '83, died at his home in Iowa Falls, on Nov. 25, 1899, of pulmonary tuberculosis.

Dr. L. L. McArthur, '80, reported a case of urethroplasty in the female, before the November 15 meeting of the Chicago Medical Society. The *Phila. Med. Jour.* of November 25 reports the case at length.

Dr. M. M. Latta, '56, was found dead in his office, November 30, 1899. Dr. Latta was one of Goshen's (Indiana) most prominent physicians.

There are several new students in the various classes this quarter. This is good evidence of the popularity of the quarterly system.

The following, concerning our neighbors up the street, is from the pen of Casper Whitney, the athletic editor of *Harper's*

Weekly. It is interesting to read what such an eminent authority thinks of them.

"Most offensive of Western football aggregations this year, however, is the band that the Chicago College of Physicians and Surgeons has gathered. Even more ex-college stars have been mustered than last year, and the array reads like a Chicago A. A. or Pittsburg all-star eleven of a few years ago. I am glad to add that Michigan's Board of Control cancelled her game with this 'collected' eleven."

Here is a clipping from one of the city papers:

"Harry Cragin takes his Rush Medical team out of the city for the Thanksgiving day game. Rush has made the best showing of any of the local medical teams, playing more and harder games and showing smoother form in team work and fast play. The games with Iowa and Wisconsin were her best. With Iowa a fumble in the first half on the ten-yard line lost her the ball and a possible chance of scoring and of possibly winning out. At Wisconsin the defense showed cleverly, the line holding well."

Dr. John M. Lane, '74, was made vice-president of the Grand River Medical Society, Missouri, at the last meeting of that body.

Dr. C. J. Whalen presented a paper on "Prevention of Tuberculosis" at the last meeting of the Chicago Medical Society.

Dr. D. H. Bowen, '76, Waukon, Iowa, is a member of The House, in the Iowa Legislature. In the same body is Dr. B. L. Eiker, '96, Decatur, Iowa.

Dr. O. C. Ormsby, '70, has moved from Logan, Utah, to Pocatello, Idaho.

Dr. W. E. Hoxie, '99, has moved from Hampton to Garner, Iowa.

The Presbyterian Hospital is the defendant in a $100,000 damage suit. The plaintiff, Mrs. Henrietta Philips of Waukegan alleges that through a mistake in administering medicine to her by a nurse, while an inmate of the hospital she has lost her sense of taste.

On January 15, Dr. C. J. Whalen read a paper before the North Chicago Medical society, on "The Treatment of Tuberculosis."

Assoc. Prof. Belfield is given a very complimentary write-up in the *Ind. Med. Jour.* for January, *in re* his chapter in "Progressive Medicine", vol. IV.

Professor Nicholas Senn delivered a lecture on "Fractures of the Skull," before the Cleveland Medical Society, on December 22.

Cards are out announcing the marriage of Dr. Percy Norman Barnesby, and Mae Pauline Campbell of New York City. Dr. and Mrs. Barnesby will be at home after February 1, at 111 Jermyn Street, Piccadilly, London.

Professor Senn on December 25 left Chicago for Corpus Christi Bay, Texas, to be the guest of the Tarpon Hunting and Fishing Club. Prof. Senn will return to college on February 1.

Dr. William W. Ralston, '86, died at Horton, Kansas, Dec. 6, 1899.

The following was received from Dr. Terry, '99, Durango, Mex.:

"I have my first case of smallpox on hand now—in the stage of pustules—child two years old. The family came into the city from the country to be near a physician during a daughter's confinement. I had the case—the mother a girl of 18. The next morning I was asked to see the youngest child a girl of two years. Diagnosis was made the following day. No one else in the family has had the disease, so I expect to have some more smallpox experience before long, probably with some interesting complications.

"A great deal of the disease is here—50 deaths caused by it last month out of 188 cases, 26 due to diphtheria; wish you could send all your antivaccination cranks down here. They would not be converted, of course, but they would stand a good chance of having the next best thing happen to them."

Yours truly, M. C. Terry.

A number of the graduates of Rush in the '99 class have been located by the Class Secretary, Dr. Wm. D. Byrne, 6526 Perry Ave. Chicago:

Dr. Jos. A. Purtell reports a fair practice at 2205 Oliet street, Milwaukee, Wis. He is on the consultation staff of St. Mary's Hospital, where he succeeded in placing Dr. C. Bush as the only interne.

Drs. Al. N. Chamberlain and E. G. Ireland have taken the State Board examination in Montana, passed, and "hung their banners on the outer walls" at Butte.

Dr. E. E. Chivers is still on duty at the Baptist Hospital, Chicago, as is also Dr. John E. Stanton at St. Anthony's Hospital.

Drs. Ellis and Clark are still at the Illinois Charitable Eye and Ear Infirmary on West Adams St.

Dr. E. C. Franing is at De Lees' Maternity Hospital.

Dr. Gallagher is practising in Hyde Park, at 144 Oakwood boul., opposite our old friend Dr. Sippy.

Drs. Gray and McMurray are in practice at Wabash Ave. and 14th St., where they report a satisfactory business.

Dr. Arthur Hagler is down among the Solons at Springfield, and Dr. C. H. Keogh has gone to Europe.

Dr. T. B. Morrissey is absorbing the sea air and hard cider of Portland, Maine.

Dr. H. W. Piper is at 6301 Cottage Grove Ave.

Dr. Will Quinn is married and when last heard from was in Las Vegas N. M.

Dr. "Yoolins" Schiller has his office at 201 Center St. Chicago.

Dr. L. Stoeffhaas is at 1464 W. 35th St. Chicago and Dr. T. R. Thomas has a comfortable berth at the City Hospital in Stillwater, Minn.

Dr. Byrne would like to hear from the "Mavericks" of the class with a view to a "round-up" in the Spring.

FOOTBALL.

LAKE FOREST—RUSH.

On December 8th Rush defeated Lake Forest University by a score of 38 to 0 at the Odgen and Rockwell grounds. In offensive and defensive work our team showed remarkable strength, not once during the game did Lake Forest make her distance nor was Rush held for downs. The wet grounds kept the score from being larger.

RENSSELAER—RUSH.

Rush won a hard contested game from the Rensselaer Athletic Club on December 22d by a score of 11 to 0. The game was played at Rensselaer. The victory is especially significant, in view of the fact that Rensselaer has not been defeated during the past four years.

Both teams showed excellent defensive work but victory was due to the terrific onslaughts of the Rush offense. Rush made all her points during the first half—although an unfortunate fumble after the ball was over the goal line robbed our team of another touch-down in the second half.

The hospitality of the Rensselaer team was of the finest. Our team received the best of treatment and the Rensselaer men did all in their power to make the trip a pleasant one.

Line up was as follows:

Rush.		Rensselaer.	
L. E.	Freeman	Woodworth	R. E.
L. T.	Farr (capt.)	Leopold	R. T.
L. G.	Keenan	Kane	R. G.
C.	Nicholson	Z. Wright	C.
R. G.	Bland	Whiting	L. G.
R. T.	Shillo	Eggeman	L. T.
R. E.	Shroeder	I. Wright (capt.)	L. E.
Q. B.	McKirahan	Rhodes	Q. B.
L. H. B.	Lamping	Marshall	R. H. B.
R. H. B.	Schwendener	Myers	L. H. B.
F. B.	Tobin	Breuley-Parcells	F. B.

Touch-downs—Lamping, Shroeder. Goals from touch-downs—Freeman. Umpire—Siefert of Wisconsin. Referee—Effendig of Rensselaer. Time of halves—30 and 25.

ILLINOIS WESLEYAN—RUSH.

On Thanksgiving Day Rush closed the most successful season in her football history by defeating Illinois Wesleyan at Bloomington by a score of 6 to 0. This was one of the most severe games of the season for our team, their opponents having practiced behind closed gates two weeks previous to the contest. Rush did not prove the easy problem that Wesleyan anticipated, and eighteen hundred people saw the maroon and yellow win.

Rush opened the game by scoring early in the first half after the ball had been in play about twelve minutes. During the rest of the half the contest was confined to the center of the field, neither side gaining much ground. During the second half Rush started out to score once more, but an unfortunate fumble made a place kick necessary, which went wide. Here Wesleyan took on new energy and taking advantage of Rush's weakened physical condition and the loss of Schwendener, forced the ball into Rush's territory. By excellent defensive work Rush forced her opponents to make a place kick which was cleverly blocked by Nicholson. Bland and Gawnne were then forced to leave the game because of injuries, thus weakening the right side. It was through that part of the line that Wesleyan made several gains which resulted in a touch-down. The attempt at goal failed.

The remaining few minutes of the game were played in darkness. Wesleyan came near making another touch-down through the inability of our men to see the ball. On the kick off the Wesleyan quarter back caught the ball and ran ninety yards through the darkness. It was the eagle eye of captain-elect John Tobin which solved the mystery and after a long chase the runner was downed on Rush's 15 yard line.

Rush then held for downs gaining possession of the ball as referee Ferfe of Wesleyan called the game on account of darkness.

Final score: Rush 6, Wesleyan 5. Line up as follows:

Rush.		Wesleyan.	
Campbell	L. E.	Cowan	R. E.
Farr	L. T.	Lillard	R. T.
Gardner, Keenan	L. G.	Mason	R. G.
Nicholson	C.	Trimmer	C.
Bland, Moore	R. G.	Elsey	L. G.
Gardner	R. T.	Rhodes	L. T.
Schroeder	R. E.	D. Ritchie	L. E.
Lamping	L. H. B.	O'Dwyer	O. B.
Schwendener,		Heafer	R. H. B.
Eignus,	R. H.B.	Peasley	L. H. B.
Tobin	Q. B	W. Ritchie	F. B.
McKirahan	F. B.		

Touch-downs—Schroeder, Cowan. Goal from touch-down—Farr. Umpire—Hilton. Referee—Fifer.

It grieves us to have to mention the fact that Wesleyan allowed one man to play on her team whose sphere was the prize ring rather than the gridiron. He was admittedly not a student and much less an amateur. Nevertheless, the Wesleyan captain repeatedly refused to take him from the game, in spite of the numerous requests of the umpire.

There was not a man on the Rush team who did not at some time during the game feel the sting of his fist—not even the umpire was exempted. Elsey and his kind have no place in college athletics.

Rush broke training at a very fine banquet given in the college halls by the young ladies. If there is one place more than another where our athletes shine it is at such a function, and in this case the brightness was enhanced by the cheerful countenances and the winning ways of the maidens of Bloomington. For further particulars watch the engagement announcements.

The Bloomington *Pantagraph's* account of the game was unfair enough to arouse the comment of a neighboring publication, which is reprinted here:

"In the Pantagraph's write up of the football game which took place between the Wesleyan and the Rush "Medic" teams last Thursday, it was plain to be seen that the writer either did not see the game or was so blinded by prejudice that he was unable to give a fair description thereof. He claimed the "Medics" deliberately stole the game, when the facts of the case were they did no more than hold out for their rights and kept the Wesleyan's from stealing the game from them. It was one of the very few instances in Bloomington sporting history where the opposing team refused to be robbed and bulldozed, and the fact that they had bumped up against an aggregation of gentlemen who were able to take care of themselves, settled so hard on their stomachs that a half column of lambasting and rot in the Pantagraph was the result. Rush played by far the cleanest game of the two, and as an example of Wesleyan's methods I will mention that I saw a Wesleyan player take several steps out of his way in order to get an opportunity to kick a Rush player in the head, while slugging was a frequent occurrence. But both Bloomington and Normal are noted for these tactics. They depend much more upon stealing any kind of a game than they do of winning it by fair playing. Saybrook has learned this to her sorrow. If they ever decide to play a fair game I wish they would send for me. I would like to see the novelty."

The management sincerely regrets that the schedule did not contain more home games. In justice to him it is but fair to say that repeated attempts were made to schedule games with the Chicago Dental College, Saint Charles Athletic Club, and other local teams, but without success.

BOOK NOTICES.

TEXT-BOOK OF OPHTHALMOLOGY. By Dr. Ernest Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized Translation, By A. Duane, M. D., Assistant Surgeon Ophthalmic and Aural Institute, N. Y. Revised from the Seventh Enlarged and Improved German Edition, with 277 Illustrations. Second American Edition, New York: D. Appleton & Co., 1899.

This volume of Fuchs' well known text-book of ophthalmology is the second American edition, uniform with other volumes in "Appleton's Medical Library." Seven German editions have been issued, each new one containing much additional matter and thoroughly revised, as compared with preceding ones. The first American was issued in 1892, and met with universal favor among practitioners. In this second edition the translator has inserted two new sections, one on heterophoria, one on homatropin and other cycloplegics and the general subject of correcting refractive errors.

Part I. is devoted to the examination of the eye, with a chapter on objective examination and one on functional testing. Part II., under the general heading "Diseases of the Eye," devotes chapters respectively to diseases of the conjunctiva, cornea and sclera, with one on embryology of the eye, one on diseases of the iris and ciliary body, diseases of the choriod, glaucoma, and one each to the lens, vitreous, retina, diseases of the optic nerve and of the lids, and of the lachrymal organs. There is also a chapter on the disturbances and motility of the eye, and on diseases of the orbit.

"Anomalies of Refraction and Accommodation" is the general heading of Part III. The six chapters therein treat of the following subjects: "Theory of Glasses," "Optical Properties of the Normal Eye," "Myopia" "Hypermetropia," Astigmatism, and "Anomalies of Accommodation."

Part IV has to do with operations. Chapter one is entitled "General Remarks," another being devoted to operations on the eyeball, and a third to operations of the adnexa bulbi.

The appendix considers the instruments used in ophthalmology, with numerous illustrations and descriptions. An excellent, detailed index concludes the volume, whose illustrations, typography and general make-up are a credit to the publishers. Any one or all of the volumes in this series are valuable additions to a physician's library.

THE DISEASES OF THE NERVOUS SYSTEM. A Text-book for physicians and students. By Dr. Ludwig Hirt, Professor at the University of Breslau. Translated by August Hoch, M. D. Assisted by F. R. Smith, A. M., M. D., with an Introduction by William Osler, M. D., F. R. C. P., F. R. S. 181 Illustrations. New York: D. Appleton & Co.

Hirt's well-known text-book on "Diseases of the Nervous System" is uniform with Osler's practice, Fuch's "Text-book of Ophthalmology," Tillmann's "Text-book of Surgery," Skene's "Medical Gynecology," Holt's "Diseases of Infancy and Childhood, all in "Appleton's Medical Library."

This work was introduced to the profession of this country by Dr. Osler, in 1893, and in his introduction of the volume, he took occasion to commend Hirt's work, of which this is a translation, and which has been characterized by Weir Mitchell as an "exceptionally well arranged and thorough work on diseases of the nervous system." In its classification, tabes dorsalis, and dementia paralytica are placed in diseases of the general nervous system instead of in the sections on diseases of the cord and of the brain. The illustrations are of a very high class, and attractive, and the author's style is distinctly clear and forceful. The first chapter takes up "Diseases of the Brain and its Meninges, Including those of the Cranial Nerves." The author devotes the second chapter to "Diseases of the Meninges of the Brain", and eleven to "Diseases of Cranial Nerves," following this with two on "Diseases of the Brain Proper." Under the general heading "Diseases of the Spinal Cord," he devotes three chapters to "Diseases of the Spinal Meninges", five to "Diseases of the Spinal Nerves", and two to "Diseases of the Substance of the Spinal Cord." The final division of the book covers "Diseases of the General Nervous System." Part I of which considers the "Functional Neroses," and Part II, "Diseases of the General Nervous System with Known Anatomical Basis."

The work is to be highly commended, each chapter head noted above, being subdivided more than can be quoted here, and the various diseases considered under these subdivisions, as for instance, the pathologic anatomy, etiology, symptoms, course, diagnosis, prognosis and treatment, with numerous references to the literature.

The Corpuscle.

Rush Medical College, Chicago, Ill.

In Affiliation with the University of Chicago.

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UNCLEAN MILK, BOVINE TUBERCULOSIS AND THE TUBERCULIN TEST:—THEIR RELATION TO THE PUBLIC HEALTH.*

E. R. Larned, M. D., Joliet Ills., Rush '99.

(From the Author's Private Laboratory.)

The dangers at our very doors from the sale of impure milk and from the lax administration of laws enacted to eradicate such dangers and the incomprehensible complaisance on the part of the public, particularly the medical profession, towards these evils, compel the preparation of this paper.

It requires no argument to show that the twenty-story building requires good material if it is to be solid and secure, and yet, judging by their actions, a great many people seem to think that it matters little what kind of material goes into the building of the human structure:—they "feed on thorns and expect to pick roses", but later they discover they have sown germs and are reaping ptomaines.

The human body is a wonderful laboratory but it does not prevent the formation of deadly poisons within its very being, once the essential germs are taken into it.

Milk has always been an article of man's diet and forms the entire nourishment of the early existence of all animals.

Pure milk is the most important article of food entering into daily use, for it contains all the elements necessary for the growth of the young, and because it forms the entire nourishment of children of an age when they are unable to resist any tampering with their food.

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*Read by invitation at the meeting of the Will County Medical Society, December 31, 1899.

"To relieve suffering and to prolong life" is the privilege of the physician, but to *prevent* disease is his *duty* particularly when efficacious methods of so doing are known to him.

The intelligent prevention of disease is one of the most important subjects of the day. The universal progress causes the public to be no longer satisfied that a physician enter a house, prescribe remedies and depart. The public wants to know the nature and origin of the sickness and the most suitable means of preventing its recurrence, and it is our duty to supply this important information.

It is a matter of common knowledge that milk is one of the most easily and most universally adulterated of the great food products and to-day the greatest menace to the physical well-being of the American people lies in the uncontrolled sale of adulterated food products.

From the importance of the subject and the ease with which milk may be contaminated, great attention has been paid to it, and we have the results of thousands of analyses and a great many investigations to guide us in our studies of the subject. Although the preservation of human health is of the first and highest importance, the perfection of sanitary methods demands that the health and thrift of the domesticated animals upon which mankind depends so largely for food and which are kept in such close proximity to the human dwelling should be likewise cared for and protected and, as shall be shown later, it is in such care of the lower animals that our own good health depends in a very great measure.

As this paper, properly, deals only with impure, adulterated, or unclean milk and related conditions, I will only speak briefly of pure milk as it should be. No milk should be sold as "whole milk," nor used, nor offered as such if it contains more than 88 per cent of watery fluid or less than 12 per cent of total solids of which 3 of those per cents should be butter fat. (1) Nor should it contain any pus, muco-pus, nor any pathogenic germs of any kind whatever and moreover, in my opinion, every drop should be "pasteurized"—that is —immediately after being drawn from the cow it should be aerated, strained and put into suitable bottles which have been previously sterilized, and heated to a temperature of 170° F for at least 15 minutes and then rapidly cooled to 45° F and kept there until the bottles are delivered unopened to the parties intending to use the milk.

Aerating removes gases which impart the "cow odor" to the milk, and rapid cooling to 45° F prevents the formation of lactic acid as the germs of lactic acid are almost inactive below 50° F. (2) Heating the milk to 170° F for 15 minutes kills all organisms found in milk, nothing remaining alive but the resistant spores of some bacteria. (3) Freeman (4) found that for the practical purpose of rendering milk safe as an article of food it is not necessary to make repeated heatings, one heating at 167° F to 170° F for 15 minutes, followed by rapid cooling by immersing the container in cold water, would as I stated before, kill the adult forms of most microbes, and that milk so treated remained unaltered for three days.

Under all circumstances, I forbid that infants shall be fed upon raw milk, when, by the simple procedure of pasteurization, we have the means of rendering milk *safe* and more digestible.

Milk which is from cows diseased in any way, or to which has been added any of the following commonly used adulterants viz: Annato, turmeric, coal-tar colors, starch, salt, cane-sugar, glycerine, syrup, boric acid, salicylic acid, borax, formaldehyde, benzoic acid, sodium carbonate or chalk, (5) should not be sold as "pure whole milk," and infractions of this rule should be firmly dealt with and prosecuted according to the laws already on our statute books.

Although, fortunately, the milk secretion is in abeyance during many diseases to which cattle are subject, it is not so in all, nor in every case of the same disease, and in a few conditions the milk presents somewhat definite chemical and microscopic characteristics which are fairly constant to the unaided eye, nose and palate, however, milk ordinarily is all that is to be desired.

These adulterants are all used by sellers and producers of milk and may be easily detected by the appropriate chemical procedures described in technical works.

To ascertain the bacteriologic and microscopic conditions of milk however, it is necessary to have recourse to somewhat complicated laboratory processes, which, familiar to most of us are quite mysterious to the uninitiated.

The discoveries made in laboratories have worked great changes in professional opinion and at the same time have lengthened the span of life and introduced the miraculous into modern science; for the apparently impossible of yesterday is not only the possible but the common thing of today. (6)

The use of coloring matter in milk or cream although greatly improving its appearance has been shown by recent investigation to seriously interfere with the pancreatic and peptic digestions. (7) As for the alleged harmlessness of formaldehyde, it is only necessary to refer to the recent death of the brilliant young pathologist Straub, of Munich, whose death is directly attributed to his working in the gas. (8)

Young states that Formaldehyde added to milk as a preservative impairs the nutritive value of the milk and interferes with the digestive processes. (9) The people of Omaha, Neb. are afflicted with a milk supply so altered by the addition of preservatives that the sanitary authorities have warned the citizens of the great danger of feeding infants with the milk. (10) Annett shows from experiments that the use of boric acid and Formalin as milk preservatives are very injurious to the health of the consumer and particularly so to the health of infants. (11) He states his belief that the great infant mortaliy rate from "diarrhea" of many large towns may be closely connected with the almost universal practice, particularly during the summer months, of systematically "doctoring" the milk by means of preservatives, by milk dealers, etc.

He intends carrying on further experiments to obtain facts for furthering the prosecution of such offenders against public health.

As the dairy industry has always been one of the most slovenly conducted branches of food production, it is with the utmost difficulty that those who are engaged in it can be induced to understand or appreciate the value of modern cleanly methods while the additional labor required will make the profits shrink to an alarming extent.

Although our sanitary laws, when and where they are enforced, have, improved the quality of milk, particularly as to its chemic composition only a bare beginning has been made in regard to making certain that the supply is *pure and healthful.* Chemic alterations are due to criminal tampering on the part of the dealer while bacterial alterations and diseased conditions are due to ignorance or neglect almost criminal.

Lestes (12) gives the results of his investigations of milk and says that milk that contains pus, muco-pus or germs is utterly unfit for human use, but, that these restrictions would entail the condemnation of 80 per cent of the examples he examined.

No farmer dreams of allowing a cow with an inflamed udder to suckle a calf, so why should he be allowed to sell such contaminated milk? Lestes also shows the folly of mixing the milk from healthy and diseased cows.

Lemiere (13) states that the death rate of Lille, France, under two years is 398.6 per 1,000 and in one parish 520. Gastro-enteritis is responsible for a very large proportion of these deaths and the author truly remarks that this is preventible in a great measure by insuring a pure milk supply.

The difficulty of a general correction of the faulty methods of milk production and the adoption of improvements are mainly due to the increased cost of the milk production and the consequent high price to the consumer. And if the state should undertake to at once enforce these changes, the business of the dairymen would be temporarily ruined. The farmer cries out in alarm where the "tuberculin test" is proposed and when the worst cases are to be rectified at once a great cry of sympathy goes up that some one is being persecuted and the press of the country is filled with the jargon of vote-seeking politicians, who, while seeking the favor of the cities, will not do anything to incur the displeasure of their farmer, dairymen, or cattle breeding constituents. At a recent meeting of farmers, dairymen and the Illinois State Board of Agriculture held in Chicago an organization was formed for the purpose of protesting against the enforcement and advo cating the repeal of the stringent laws passed by the last legislature relative to the eradication of tuberculosis in cattle.

Great dissatisfaction is expressed among the farmers of this and adjoining counties over the compulsory killing of cattle for tuberculosis. "At a recent examination on the dairy farm of W. G. Thornton by State Veterinarian Lovejoy and Live Stock Commissioner Johnson (14) eight cows of a herd of twenty showed signs of tuberculosis. The state board slaughtered them in the presence of several hundred people. Four of the cows were found free of the disease while the other four cows were only slightly infected. Dairyman Thorntou has retained lawyers and will prosecute the case."

I will undertake to show that the Tuberculin Test if correctly and intelligently applied is most infallible in the diagnosis of tuberculosis, and I doubt very much that "four out of eight" reacting cows were free from the disease.

Secretary Wilson of the Department of Agriculture, in a recent interview published in the Chicago papers, is said to have remarked that "he feared that Gov. Tanner's proclamation relating to the importation of cattle was too drastic." He did not approve the slaughter of cattle suspected of tubercular infection unless the case developed *indisputable* symptoms of the disease. He sincerely hoped that the State Board of Health would not permit the indiscriminate slaughter of cattle suspected of tuberculosis to the * * * detriment of the dairy interests of the country. Secretary Wilson's cautionary advice is worth careful consideration but I would like to ask the gentleman what are the *indisputable symptoms* of tuberculosis? There seems to be some difficulty among scientific minds as to this question.

Now legislation cannot make honest men of dishonest men, and ill-directed legislation is often worse than none, but, the annual sacrifice of thousands of innocent young lives upon the altar of impure milk, and public sentiment once aroused, will sanction *any* destruction necessary to the eradication of tuberculosis.

So let us shed a little light upon this dark subject where "ignorance seems to reign supreme." It requires the strong hands of law and justice to deal with it and I demand to know if any consideration of money or politics can be permitted to weigh against a possible danger to the lives of our children?

Emmet Holt points out (15) that the most important preventative measures in the treatment of "Summer Diarrhœa" of infants comprise careful inspection of milk sold in cities and close supervision of those selling milk and the sterilization of all milk sold.

Lübbert has shown (16) that milk as it usually comes from the dairies contains bacteria which have the power of peptonizing it and as this process of peptonizing goes on the milk often becomes very poisonous, especially to individuals under two years of age and may bring about a fatal entero-colitis or "summer complaint." Hirsh (17), Sibman (18), Spiegalberg (19), Monti (20) and Escherich (21) have all lately contributed to our knowledge of the flora of the gastro-intestinal tract. Their observations agree and point to the streptococcus enteritis as the etiological factor in the acute diarrhœas of infants where the stools are frequent and slimy. They also agree that these organisms find their way into the child's intestines through milk and that these identical micrococci have been recently isolated from cow's milk.

Heath of Buffalo (22), suggests the following as being worthy of being incorporated to fortify existing laws relating to the milk industry.

1. Prohibition of sale of milk over 36 to 48 hours old.
2. Prohibition of disinfectants. Milk-house conditions must preclude their necessity.
3. Supervision of contagious diseases as to milk routes.
4. Abolition of street peddling and grocery store dealers.
5. Sterilization at dairy and preparation for ultimate delivery with labels of data.
6. Arbitrary attitude towards dairies supplying cities and over which no jurisdiction exists.

Pierson (23) Asst. Chief, Dairy Division Dept. of Agriculture, gives the following as the ordinary conditions that should be found in every well-managed dairy:

1. A roomy, clean, dry, light and well-ventilated cow stable. This is absolutely necessary to keep cows in the best of health.

2. Healthy and clean cows which appear well fed and contented.

3. Abundance of pure water given to the cows at least twice daily.

4. Feed of good quantity. The food must be free from dirt, decay or a musty condition.

5. A spirit of kindness towards the stock by every one employed about them.

6. Provision for aerating, straining and cooling the milk, in a clean atmosphere free from all stable odors, immediately after being drawn from the cow.

7. Provision for washing and sterilizing all utensils which come in contact with the milk.

8. Facilities for storing the milk and keeping it cold.

To show that these are not simply theoretically and visionary possibilities, the brilliant example of the Royal Danish Veterniary School in reference to the milk supplied to the city of Copenhagen may be cited. At no other place are modern methods in such general use or are they controlled with such efficiency. In this country New York, Massachusetts, Pennsylvania, Iowa and Minnesota have legislated along these lines, but in all of the laws there is the defect of too much of the feature of money "protection" to the farmer.

In our own immediate neighborhood several instances of voluntary improvement have demonstrated that even with the increased cost of production and increased selling price there is still a good chance of success and that in the end the intelligent consumer will appreciate the honest efforts expended in his behalf.

Such examples as the work of Dr. Russell of the Wisconsin Experiment Station in supplying milk to Madison and Milwaukee and his development of pasteurized milk for infants and invalids—the work of Gurler of De Kalb, of the Clover Hill Farm, and the Walker Gordon Laboratory in supplying milk to Chicago, are worthy of the highest commendation.

Reviewing these demonstrations, any doubt as to the possibility of supplying cities with milk of a high standard of quality and purity for general distribution must be removed and these examples should be emulated by every dairyman in the business.

To show what may be accomplished by systematic inspection and prosecution, the example of the Department of Health of Chicago may be cited: In August 1895, (24), the authorities issued instructions ordering the entire force of the municipal laboratory to bend every energy towards improving the milk supply and to vigororously prosecute all dealers selling milk or cream not in accordance with the city ordinance.

The number of samples collected and analyzed was at once ncreased and the prosecution of offenders reduced the number of samples below grade from 60 per cent. of all samples collected to 5 per cent. in a few weeks. Over 14,000 samples were examined in 1895 and over 25,000 in 1896. Vigorous prosecution and publication of the names of dealers has shown its effect not only on the dealers themselves but on the farmers who supply them. In cases where the milk has been found wanting in any particular, the dealer has stopped taking milk from this farmer and thus the farmer has been forced to supply good milk.

It has been repeatedly held in courts that shippers of milk below grade cannot recover in a suit for payment.

Every analysis of milk made represents a sanitary inspection of the premises where the sample was taken as well as an examination into the quality of the milk. Moreover special sanitary inspections are made whenever the circumstances seem to warrant.

I have visited many dairies in the immediate vicinity of this city but I have yet to find one where proper and adequate hygienic sanitary measures are carried out, and I have yet to find one where there are not abundant avenues for infecting the milk. In almost every quart of milk sold in this city, after standing, a sediment collects which upon macroscopic examination appears to be dirt and microscopic examination and culture experiments prove to be teeming with germs. I have observed this not once but many times and I submit that this is not the kind of food for our babies and patients and our aged and infirm.

Are we to allow such conditions to go on unprotested? Or is it not rather our duty to issue a warning to the public and to call things by their right names—to point out in unmistakable terms the enormous danger to public health that arises from mistaken ideas of cleanliness and the slaughter of innocents caused by the idiotic methods employed in our milk production.

I have lately made some cultural experiments with milk sold in this city and I give you tonight the results according to my notes and these samples which I now show you.

The technique of these bacteriologic investigations was carried out in the simplest manner, to test the milk for the presence of germs of the "typhi-colon group" as well as other pathogenic forms. Beyond the colon group just mentioned no particular efforts at the identification of separate species were made—that being left for the future.

Samples of milk, averaging one pint each, were purchased in the open market from the various dairies supplying milk to the residents of this city, from cows tested with tuberculin and those not so tested.

These samples were put into pails which I provided for that purpose and which had been subjected to steam sterilization. They were at once carried to the laboratory and put into tall sedimenting glasses which had also been steam sterilized and allowed to stand for 12 to 18 hours being kept at a temperature ranging from 45° to 50° F during this time.

Then 10 c.c. were drawn into a sterile pipete and placed in the tube of the centrifuge which was then whirled at a speed of 3,000 revolutions for five minutes. After the bulk of the milk has been poured off, a small portion of the sediment emaining in the bottom of the tube was taken up with the platinum loop and used to inoculate tubes of sterile glucose gelatin, which were at once put into the incubator and kept at 70° F. for periods varying from one to four weeks. Positive reactions were obtained in nearly every sample. Second, and in some cases, third generations from the original gelatin cultures were grown in glucose-glycerine-agar, on slants, in stabs and in plates.

These agar tubes and plates were kept in the incubator at a temperature of 35° to 40° C. and in 24 hours showed numerous colonies which continued their growth in such exuberance that in 72 hours the surfaces of the media were entirely covered.

Cover slips prepared from these cultures showed germs with the same morphologic characteristics as the direct smears from the milk. Control tubes of uninoculated media which were always opened with the inoculated tubes and in every way subjected to the same manipulations and conditions have remained absolutely sterile—consequently we can attribute the positive results produced in the samples I now show you, to the presence of undersirable constituents in the milk examined.

Litmus agar slants were prepared from the colonies of the third generation growing upon glycerine agar and an acid reaction was shown in 24 hours continuing, with the formation of gas cavities, until in from three to four days the media had entirely changed from blue to red.

Glucose bouillon inoculated with these cultures and put in the fermentation tube rapidly developed gas which was easily identified as H and CO_2.

From the drop of milk remaining in the tube after the inoculations were made, direct smears upon coverslips were prepared which showed upon examination under moderately high power many germs both micrococci and bacilli. Although careful search for tubercle bacilli was made in every sample of milk examined they were found in very few cases only. Right here, it may be well to remark that contrary to the books, it is no easy matter to demonstrate tubercle bacilli in milk even when we are well satisfied that the milk is infected. Gehrman has reported that thorough search failed to reveal the germs in milk from cows of the herd belonging to the Hospital for Insane at Kankakee, Ills., proven to be tubercular and where culture experiments were successful in cultivating the germs from the milk samples. When I state that all of my samples were taken from popular dairies which supply a large clientele, I think that you will agree that such milk is utterly unfit for food and its sale should be stopped and further vending prosecuted.

Bacteria are always present in milk unless it is drawn from the udder under sterile precautions and milk can be contaminated in various ways, viz:—from the udder direct, by the hands of the milker, dirty vessels, hay dust or by the water added by the thrifty milkman.

"The transplantation of diseases to new fields is characterized by their aggravation. Microbes like other vegetables grow best in virgin soil."

From contamination with diseased matters, from affected persons and premises, milk may be the means of carrying and spreading many of the most destructive diseases of man and domesticated animals, such as, diphtheria, typhoid, scarletina, cholera, anthrax, foot and mouth disease, glanders and tuberculosis, and the published results of several recent investigations have shown that the recognized dangers attending the consumption of raw milk exist in butter and cheese.

That the diseases above mentioned may be communicated from lower animals to man and from men to the lower animals has been conclusively demonstrated so many times that the bare statement of the fact seems almost superfluous but there are those, whose statements have weight in some quarters, who will still deny these statements.

While, as it seems to me, nothing has been more clearly proven than the practical identity of human and bovine tuberculosis, the infectiousness of milk from tubercular cows, and the efficacy of the tuberculin test as a diagnostic agent, it has remained for one veterinarian (26) in an elaborate article recently to ridicule all efforts to establish the infectiousness to humans of milk from tubercular cows, and the infectiousness of human sputum to cattle, etc., and upon analyzing the article of this reactionary, one readily sees that his only authority for his statements in support of his contention, is from personal experience with catte and his *never having heard* of any human contracting tuberculosis from catttle and vice versa and from a number of letters from "prominent fanciers," superintendents of dairy farms and the like, who also have never heard of such cases.

Arrayed against such negationistic statements as this author fathers, is the immense amount of published matter from careful, painstaking scientists filling the medical press and accessible to every one—examples of which incorporated into this article.

The science of our forefathers was founded upon empiricism—upon experience alone—and the argument from there was no appeal, was—"I find, from experience." Then came a new era, wherein science was based upon the laws of chemistry and the demonstrations of physiology. Vague and uncertain methods were changed to clear and positive knowledge and the argument of experience was overthrown by the evidence of the microscope and the test-tube.

So in this case, we know that bovine tuberculosis can be transmitted to other animals including man and vice versa by the facts produced by the laboratory work of many observers.

As long ago as 1877, before the bacillus of tuberculosis was described, Birch-Hirschfeld called attention to raw cows milk giving rise to diseases in children corresponding to certain forms of scrofula (27). In a recent number of the *British Medical Journal*, Rowland has called attention to milk, butter and cheese as carriers of typhoid fever and cholera. Steyer and Konel (28) have reported several cases of typhoid which were traced to butter as a source. It has been repeatedly shown that when the bacilli of hog cholera are placed in sweet milk they will appear in butter and buttermilk in numbers large enough to destroy experiment animals when inoculated with a very small portion of either. It has also been shown many times, that when, certain bacteria have made their way into milk or butter they remain alive and virulent for a considerable length of time.

Lafar (29) found tubercle bacilli alive and virulent after they had been in butter 120 days.

Laser (30) found tubercle bacilli, cholera and typhoid germs in a like condition after a week's stay in butter. Moore and Dawson (31) showed that tubercle bacilli remained virulent in butter for more than 90 days and a guinea pig inoculated with a piece of butter the size of a pea died of tuberculosis 97 days after its infection.

Although the number of reported cases of acute infectious diseases in which the contagion was introduced through *butter* is not large, it is enough to show the possibilities—and in view of this evidence—a careful inquiry into the character and management of milk used for this common article of food is of vital importance and by sterilizing milk in the dairies and creameries, one of the channels of infection would be closed.

Ostertag (32) has shown that there is much tuberculosis among swine in certain parts of Germany where they are fed upon material from the creameries. And in certain parts of this country the more enterprising breeders refuse to feed their cattle upon the skimmed milk of the creameries and the slime of the separators unless it has been sterilized by heat.

Huesinger has reported anthrax in man produced by drinking the milk of a cow affected by this diseaae.

Nocard has found anthrax bacilli in the udder of a cow examined immediately after death.

Klein has stated, that in milk cows afflicted with diphtheria, the lesions are sometimes located in the milk ducts and then the bacilli are carried directly into the milk.

West (33) reported that two children of a man named Bridges died of tuberculosis due to drinking the milk of a cow which was found, when killed, to be the subject of extensive udder tuberculosis. Five more of the Bridges children were suffering from pulmonary tuberculosis.

The Royal Commission on Tuberculosis (34) reported experiments in which swine, guinea pigs and rabbits were fed upon uncooked milk and that tuberculosis was thus caused in a very large per cent of the subjects used.

Investigations reported frem Massachusetts (35) show that milk from tubercular cows may contain the germs of disease even when there is *no* lesion of the udder.

Taylor observed (36) several cases of scarlatina which occurred in the home of a milkman whose wife milked the cows —the milk being supplied to 12 families in the city.

In six of these families cases of scarlatina occurred in rapid succession at a time when the disease was not epidemic and without any communication having taken place between those that became infected and the person who brought the milk.

Sternberg (37) says that a common mode of tubercular infection especially in children is probably by way of the intestinal glands from the ingestion of milk from tubercular cattle, and that such infection will occur, has been proven by experimentation upon lower animals.

Von Hessling has published observations concerning the development of moulds in milk which showed that the milk could be so permeated with the germs as to poison the hot coffee to which it was added in small quantities.

Wende (38) reports the occurrence of 56 cases of scarlatina in children of 27 families upon the route of one milk dealer two of whose family were suffering from the fever.

Eyre (39) reports an examination of milk in an epidemic of diphtheria among the inmates of a large school receiving its milk supply from one source and shows that the typical diphtheria germs were found in the milk.

Kauthack and Sloden (40) reported a series of observations of the milk from 16 dairies wherein the milk from 9 caused tuberculosis in guinea pigs inoculated with it.

Hertwig and Jacob (41), Bollinger (42), and Schneider (43) have all demonstrated the infectiousness of milk from cows suffering from the foot and mouth disease (Aphthæ Epizootical), in a series of experiments upon themselves and others.

Dinwiddie (44) in reporting a long series of experiments as to the relative virulence of human and bovine tuberculosis finds that, for cattle, bovine tuberculosis seems to be more virulent. For pigs there seems to be no difference, both producing infection. Sheep were highly susceptible to infection from human tuberculosis and that the disease was similar to the naturally acquired tuberculosis of cattle.

Still (45) reporting 769 autopsies of children stated that intestinal tuberculosis existed in 52 per cent of the cases he examined and that 71 per cent of the tubercular cases were under the age of four years and that 43 per cent of the 71 per cent were in children younger than 2 years of age—the primary lesion in every case being in the digestive tract. Nicolas and Lesieur (46) reported the results they obtained by causing young fish to eat sputum known to contain tubercle bacilli. After seven months the fish were kiled and bacilli found in every organ of their bodies. The muscular portions were fed to guinea pigs and in the nodules and abscesses which formed in the bodies of the pigs the tubercle bacilli were readily demonstrated.

Dr. Brush (47) stated that the annual loss in New York due to deaths from tuberculosis exceeded the whole cost of the government. In this matter of tuberculosis being contracted by human beings from infected milk—I may say that the whole subject of tuberculosis is of such proportions and the menace to public health from this fearful disease of such magnitude that I doubt if more than a few of us realize the actual conditions as they now exist.

That tuberculosis is not decreasing can be readily seen from the following quotations from the mortality statistics of the Chicago Department of Health (48). Of the total mortality in 1851 4½ per cent was due to pulmonary tuberculosis and in 1896 it had risen to 10 per cent, or more than twice as many.

The death rate per 1000 has increased from 12 in 1851 to 14¼ in 1896. The total number of deaths from tuberculosis of all kinds in 1879 was 977 and had increased to 2667 in 1896. Of course during this period the population had increased very rapidly, but the annual death rate from tuberculosis had, also, increased from 11.34 per cent of the total mortality to 11.46 of total mortality—and again while the annual death rate from all causes had dropped from 17.52 per 1000 of population in 1879 to 14.36 in 1896, the mortality rate of tuberculosis in all forms had actually increased as above shown.

The general verdict of the Tuberculosis Congress at Berlin (49) is that "tuberculosis is not hereditary; that the remedy lies in prevention more than cure; and the more healthy the surroundings the more rare the disease." The movement inaugurated by the Congress of Berlin has been carried on by many American cities and recently in Chicago there was founded the Illinois Society for the Prevention of Tuberculosis. (50) The fight will not be directly against the bacillus of tuberculosis but to the physical conditions of the race—improvement in sanitary arrangements—relief from overcrowding and abundant and pure water supply for cattle and swine as well as man will do more to eliminate this dread disease than tons of antiseptics and serums.

The Illinois society will institute (51) an active campaign for legislative aid for the care and cure of consumptives, and for the organization by the Chicago City Council of a special milk inspecting department which shall prohibit the sale of milk not previously certified as non-tubercular.

In the early stages of tuberculosis of cattle the symptoms are not always plain—a short, dry cough is present and sometimes very noticeable after active exertion. The animal becomes poor, the coat rough, and the eyes sunken. Sometimes tenderness and pain are evinced when the side of the chest is touched and the normal sound of the lungs is changed. In cows, nymphomania frequently accompanies tuberculosis. Medical treatment is useless—the diseased animal should be slaughtered and the stables thoroughly cleansed and disinfected.

Dr. Grange (52) states that he has met many cases which have convinced him most emphatically that tuberculosis can invade an animal most extensively and yet the disease cannot be diagnosed by physical examination. He mentions this to impress the value and importance of tuberculin as a test.

The description of this remarkable substance was first given to the public about 6 years ago, at which time it was thought to be a curative agent for tuberculosis. It did not, however, do what was expected and was abandoned as a cure. Tuberculin is now recognized the world over as the most safe, reliable, and practical mode of diagnosing tuberculosis in early and late stages, that is in the possession of mankind.

The application of the tuberculin test has proved so accurate in diagnosing the disease that the U. S. Veter. sAsn. in Sept. 1896 (53) adopted among others, the following resolutions.

1. Tuberculosis in cattle and man is identical.
2. Germs of tuberculosis appear in the milk of tubercular cows.
3. Tuberculin furnishes incomparably the best means of recognizing tuberculosis in living animals and *properly* administered is harmless to healthy animals and is exceedingly accurate.

A series of tests were made in Berlin (54) to ascertain whether in the absence of symptoms or any external sign, tuberculin could be trusted. The results proved that it was accurate even in animals seemingly perfectly sound.

It has been objected that tuberculin decreased the flow of milk in the animals treated but any temporary decrease is offset by a compensatory increase and in most cases there is no change. (55).

Tuberculin is a solution in glycerine and water of the products of the growth of the tubercle bacilli upon artificial media and the contents of their cells. (56).

The fluid upon which the bacilli are allowed to grow is an extract made with distilled water from perfectly fresh meat. One pound of meat is used to a liter of water, to which is added 1 per cent of peptone, ¼ of 1 per cent of salt and 7 per cent of glycerine. This solution is heated to boiling, filtered and placed in sterilized flasks and subjected to fractional sterilization.

The inoculation of the media is accomplished by taking up on the end of a platinum wire a small mass of tubercle bacilli growing on agar and obtained originally from an animal that has died of tuberculosis—and transferring it to the sterile flasks and causing it to float on the surface of the liquid. The inoculated flasks are then placed in the incubator and kept at a constant temperature of about 98° F. After about a week or ten days the bacilli can be seen spreading in all directions and finally the surface of the liquid will be covered with a layer of tubercle bacilli. When this is noted the flasks are carefully shaken so as to cause most of the growth upon the surface to sink to the bottom of the flask. From a small particle left upon the surface a new growth is developed which should be shaken down as the first was and a third growth allowed to form.

This process requires six weeks to two months or more and the contents of the flasks are then in condition for the preparation of the tuberculin. When the cultures have grown sufficiently the flasks and their contents are taken from the incubator and at once placed in the sterilizing oven and kept at a temperature of 125° C. until they begin to boil. In this way the germs are killed and the material may then be filtered without any danger to the workers. After the sterilization, the contents of the flasks are once more boiled and filtered—

the filtrate is then evaporated and concentrated to any desired volume, as a rule 1-5 of the original quantity.

Instead of sending out this concentrated tuberculin—it is diluted to such a strength that 2 c. c. is a suitable dose for an animal of 1000 lbs. weight—and to accomplish this, there is added to the concentrated solution glycerine equal to 25 per cent of the original culture liquid—this is then diluted with $\frac{1}{4}$ of 1 per cent carbolic acid so that the volume of the tuberculin is usually equal to one fourth more than the original quantity. In practice, it has been found that healthy animals do not give reactions with large doses of tuberculin and that tubercular cattle do not show a higher reaction with large doses than with small doses of tuberculin.

As will be readily seen from this description of the manner of preparing tuberculin, there is not the slightest possible danger of infecting animals or men with tuberculosis by the use of tuberculin.

Again—there is no danger of injuring healthy animals even with quite large doses of tuberculin, as it is apparently very readily eliminated in the fæces and urine. When the tuberculin is to be used upon dairy cattle, a test of the same herd should be made at least once every six months (55). The regulations prescribed by the Bureau of Animal Industry for the use of tuberculin in testing cattle are as follows: (55)

"To those who have large herds or lack time this shortened course is recommended.

1. Begin to take the temperature at 8 A. M. and continue every two hours until 10 P. M.
2. Make the injection at 10 P. M.
3. Take the temperature next morning at 6 or 8 o'clock and every two hours thereafter until 6 or 8 P. M.
4. Each adult animal should receive 2 c. c. of the tuberculin as it is sent from the laboratory. Yearlings and two year olds should receive 1 to $1\frac{1}{2}$ c. c. according to size. Bulls and very large animals may receive 3 c. c.

The injection is made beneath the skin of the neck or shoulders, (and to guard against complaint and to eliminate possible sources of error, the hair should be closely clipped from the site of the injection and the skin scrubbed with hot water and soap and a 5 per cent. alcoholic solution of carbolic acid before the injection is made). The animal should not be turned out, but fed and watered in the stable and the time of watering and feeding noted.

There is usually no marked swelling at the seat of injection but there is, now and then, uneasiness, trembling and the passage of softened dung. There may be also slight acceleration of the pulse and of the breathing.

If the animal is diseased, from 6 to 8 hours after the injection is made, the temperature begins to rise from the normal which in cattle varies from 101° to 102° F., and should continue to rise until 105° to 107° has been reached. A rise of 2° above the normal is to be regarded as good evidence that the animal is tubercular and for any rise less than this, a repetition of the injection after 3 to 6 weeks is highly desirable. Dairy herds once found free from disease should not be herded with new animals that have not been tested and found sound.

In conclusion it would seem that the administration of tuberculin should always be conducted under experienced direction.

It is an invaluable test and by its use, it is certainly possible to reduce very materially tuberculosis among cattle and may be, to eventually to exterminate it. So, let us insist that the public be provided with pure, healthful milk of the same high standard of quality, cleanliness and uniformity, demanded by discriminating people in other food products.

In closing I desire to acknowledge the great assistance rendered by the references in the appended list and which I have liberally quoted.

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NOTES ON URINALYSIS.

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[To be continued in March Corpuscle.]

To collect urine for examination: In most cases it is desirable to have a 24 hours specimen for examination. In order to obtain this accurately, it is necessary to direct the patient explicitly how to collect the urine. It is customary to ask the patient to evacuate the bladder, at a certain time, e. g., at 7 A. M. and throw away the urine voided at this micturition; then to collect all the urine voided until 7 o'clock on the following morning, the last urine collected, being that voided at 7 o'clock. If the urine is to be kept for some time before being examined, it is necessary to take precautions to prevent decomposition. The vessel in which the urine is collected should, if possible, be sterilized and some antiseptic should be added. Chloral hydrate and formalin are the antiseptics most commonly used. Their effect upon the test applied must be borne in mind. The former reduces the copper test solutions and hence would interfere with those tests for sugar. In order to obviate this difficulty, resort can be had to Böttger's bismuth test, with which chloral does not react. Formalin also, being a reducing agent, will, if added in large quantities, reduce the metallic oxides. To keep the urine sweet, one or two drops of formalin to the ounce of urine will suffice; in this proportion it will not interfere with the copper test for sugar, but will, if present, slowly coagulate albumin.

In some cases it is important to collect separately the result of each micturition, as it is of much prognostic significance to determine whether albumin is present in the urine at all times of the day, as for example, in cyclic albuminuria.

In cases where the urine becomes mixed with urethral discharges, e. g., in gleet, the patient should be instructed to discharge the urine into separate vessels at each micturition; in this contamination of the urine by urethral discharges can be determined. The first vessel will contain the washings of the urethra, the second, the urine free from urethral discharge.

In acute cases where it is important to ascertain the true condition as early as possible, the physician should obtain a sample at once, and then order the urine for twenty-four hours to be collected.

Quantity. The quantity of urine excreted in 24 hours varies considerably under different conditions, as, age, weight, sex, diet, season, habits, etc. The normal quantity for 24 hours is from 30 to 50 ounces. The quantity varies directly as the amount of liquid ingested, inversely as perspiration, hence is less in summer than in winter. Certain drugs, as diuretics, increase the flow of urine, while others producing a passive congestion of the kidney, diminish the flow.

In disease the quantity may vary from *nil* to several gallons. Total suppression may occur in hysteria, acute febrile conditions, acute nephritis, renal calculus, cholera, after the ingestion of drugs producing an intense congestion of the kidneys, and reflexly, as for example, when instruments are used on the genito-urinary tract. The urine is diminished in acute febrile conditions, parenchymatous nephritis, diseases attended by diarrhœa or profuse perspiration and in congestion of the kidneys. An increase may occur in hysteria, many other nervous conditions, cardiac hypertrophy, interstitial nephritis, diabetes mellitus, and diabetes insipidus.

Specific Gravity. The specific gravity is normally about 1018. It varies usually inversely as the quantity. Conditions tending to increase the fluid portion of the urine, such as copious drinking, and administration of certain diuretics, lower the specific gravity. The specific gravity is increased when small quantities of fluid are ingested and when large quantities of nitrogenous foods are eaten. Certain drugs when taken in large quantities and eliminated in the urine, such as Potassium Iodide and Potassium Bromide raise the specific gravity considerably. In all forms of nephritis the specific gravity is usually below normal. In some nervous conditions and diabetes insipidus, where enormous quantities of urine are passed, the specific gravity may be as low as 1002. The specific gravity is greatly increased in diabetes mellitus, reaching at times 1050. A high specific gravity with a large quantity of urine is always suggestive of this disease.

To determine the specific gravity, fill the cylinder sufficiently full to float the urinometer; introduce the urinometer, and, when it comes to rest and does not touch the sides of the cylinder, read off the figure at the level of the surface of the urine. The specific gravity should be taken at the temperature for which the urinometer is graduated.

The specific gravity *per se* is not of much significance, except, perhaps, as an indication of the degree of concentration of the urine. When considered together with the total quantity of urine passed in 24 hours, it enables us to determine the amount of total solids, thus giving information that is of the utmost value.

To calculate the amount of total solids, multiply the last two figures of the specific gravity by 1.1 (Haines' cöefficient) and the result will be the number of grains contained in each fluid ounce. This result multiplied by the number of ounces of urine will give the total number of grains of solids excreted in 24 hours.

Example: Sp. gr.=1020; Quantity 45 ounces.
20x1.1=22. 22x45=990 grains of solids.

If the metric system is used, multiply the last two figures of the specific gravity by 2.33 (Haeser's cöefficient); the result will be the number of grammes per litre of urine.

Example: Sp. gr.=1018; Quantity=1500 c. c.
18x2.33=41.9. 41.9÷1000x1500=62.8 grammes.

The total solids vary from 600 to 1200 grains *per diem.* A person weighing 150 pounds, should, upon ordinary diet, excrete 900 grains of solids in 24 hours. An insufficient excretion of solids, in many cases, is responsible for serious symptoms which might often be relieved if the true condition is recognized by urinary examination. The solids are increased by diuretics, ingestion of a large amount of nitrogenous food, etc.

Color. The color of normal urine varies from a light straw to a reddish brown. The intensity of the color varies directly as the degree of concentration. A higly colored concentrated urine may be brought about by excessive eating, violent exercise, etc., having also a high specific gravity and strong acidity. In cases of polyuria, the urine may be almost colorless. The color aside from serving as an indication of the degree of concentration is not of much value in diagnosis.

Biliary urine and urine containing a small quantity of blood have a peculiar greenish smoky appearance that is quite suggestive; a larger quantity of blood imparting a reddish color to the urine. Certain drugs when administered impart characteristic colors: Santonin imparts in acid urine a bright yellow color; senna and rhubarb give a reddish color. Many aromatic compounds, such as carbolic acid and salicylic acid render the urine dark and smoky. The aniline colors usually impart a color similar to the dye ingested, methylene blue, for example, giving to the urine a blue color. Sometimes indican is oxidized in the system and is excreted as indigo, causing the urine to assume an indigo blue color.

ODOR. The normally aromatic odor of urine becomes changed by the alkaline fermentation to that of ammonia. This occurs when the urine stands in a warm place and is only significant of disease when it is noticed on passing the urine. Urine containing pus may give off a very disagreeable putrid odor on undergoing the alkaline fermentation.

The odor of the urine may be modified by diet. medicines, and in certain diseased conditions, but the changes in the latter are not usually sufficiently marked and characteristic to be of clinical significance.

Reaction. The reaction of the mixed twenty-four hours urine is normally acid, but the reaction of that passed at various times in the day may be normally either acid or alkaline. The kidney regulates the reaction of the blood by excreting acid when the alkalinity of the blood is low and alkali when it is high. Acid urine is likely to occur upon the introduction into the blood of acid substances, or the lessening of acid secretions or excretions, e. g., perspiration or gastric juice. Alkaline urine is likely to occur on the introduction into the system of bases combined with organic acids or with inorganic acids which yield alkaline salts, as well as by the excretion or secretion of acid by other emunctories. Thus the introduction of acids or acid salts, even the acid carbonates, causes the excretion of acid urine. The introduction of alkaline salts and of the neutral salts of the fatty acids tends to neutralize acidity, and in sufficient doses to make the urine alkaline. The introduction of neutral inorganic salts and usually the neutral salts of the organic acids of the aromatic group produces no effect.

Increased action of the skin, secretion of the acid gastric juice, elimination of carbonic acid by the lungs cause a diminution in the acidity of the urine or cause it to become alkaline.

Suppression of the action of the skin, interference with respiration, deficient secretion of acid in the gastric juice cause increased acidity of the urine. In fevers, rheumatism, diabetes, the acidity is increased, while in some nervous diseases it may be diminished or the urine may become alkaline. In fevers the acids formed in the system are partly neutralized by combination with ammonia so that the urine contains a considerable proportion of ammoniacal salts.

The effect of the administration of bicarbonates on the reaction of the urine is somewhat peculiar. If taken before meals so as to be absorbed unchanged they tend to increase acidity; but if taken after meals they neutralize the acid of the gastric juice and so produce the effect of an alkali. Their action in increasing acidity is explained by supposing that they react with sodium phosphate to produce acid sodium phosphate which passes into the urine, and an alkaline carbonate which remains in the blood. Thus the alkalinity of the blood is increased as well as the acidity of the urine. The reaction stated above may be expressed by the following equation:

$$NaHCO_3 + Na_2HPO_4 \quad Na_2CO_3 + NaH_2PO_4$$

The acidity of urine is due to the presence in it of acid sodium phosphate chiefly, although in some cases other acids may be present.

The alkalinity of urine may be due to the presence of potassium or sodium carbonates or phosphates in which case the alkali is said to be fixed; or to ammonium carbonate when the alkali is said to be volatile. The volatile alkali is quite uniformly produced by fermentation due to the action of certain bacteria, chief of which is the micrococcus ureæ. These bacteria cause the decomposition of urea which takes up water and forms ammonium carbonate.

$CO(NH_2)_2+H_2O=(NH_4)_2CO_3$.

To determine whether the alkalinity of the urine is due to fixed or volatile alkali, the reaction of the urine determined by litmus paper, and if the reaction is alkaline, a piece of moistened red litmus paper is held above the urine while the urine is gently heated not much above the temperature of the body (38° to 40° C.) If the paper turns blue the reaction is due to volatile alkali. Volatile alkali as the result of the alkaline fermentation occurs outside of the body when the urine is allowed to stand in a warm place, especially if it be placed in unclean vessels. The ammonia is produced sooner if the reaction of the urine when voided be neutral or alkaline from fixed alkali.

Ammoniacal urine is pathologic only when this reaction is present when the urine is voided. It then indicates that the alkaline fermentation has occurred in the urinary passages, most commonly in the bladder. The occasion of this fermentation in the bladder is the introduction of germs, usually through the urethra, when the mucous membrane is in an unhealthy state. When germs are introduced into a healthy bladder they are soon expelled with the urine or are destroyed by the bactericidal action of the organ. But if the mucous membrane of the bladder is diseased or if its motor power is impaired by paralysis or by obstruction to the flow of urine, the germs remain in the bladder and ferment the small amount of urine remaining after micturition, and so set up a process that perpetuates itself and is very hard to stop. To prevent this fermentation the utmost care should be exercised in introducing the catheter, not only that the instrument itself should be aseptic, but that the meatus urinarius and its neighborhood should be careful disinfected.

URINARY SEDIMENTS.

Normal urine when first voided is usually clear but may be turbid from phosphates if the reaction is alkaline. Upon standing a cloud of mucous settles to the bottom. When the urine becomes cold, if acid and concentrated, the urates are precipitated as a white or pinkish deposit. In either acid or alkaline urine we may have a fine, scanty turbidity due to calcium oxalate. A similar appearance is produced by a small amount of pus. After the urine has stood some time it becomes cloudy from the presence of bacteria. Blood and casts also form sediments in the urine.

In testing the sediment of urine we are largely guided by the reaction. If the reaction is acid the sediment, if abundant, is probably urates; if scanty, it may consist of calcium oxalate, uric acid, bacteria, pus, blood or casts.

Urates dissolve on gently warming the urine. Uric acid may be seen on the bottom or sides of the vessel as reddish grains, and is best recognized by the microscope. It dissolves on warming with liquor potassæ. Calcium oxalate is best recognized by the microscope. It dissolves on the addition of hydrochloric acid. Bacteria, blood, pus, and casts remain undissolved, and must be detected by the microscope.

If the urine be alkaline an abundant precipitate probably consists of phosphates. If scanty it may consist of calcium oxalate, bacteria, blood, pus, or casts. The phosphates are white, unless blood be present, when they may have a brownish color. Phosphates are dissolved on making the urine acid with acetic acid. Calcium oxalate does not dissolve in acetic acid but does so on the addition of hydrochloric acid. Bacteria, blood, pus, and casts remain undissolved and must be detected by the microscope. Pus when abundant may be recognized by the fact that it becomes ropy or gelatinous when treated with liquor potassæ.

When a considerable amount of pus is present in alkaline urine it may become ropy from the action of the alkali.

A deposit in urine is chiefly significant as indicating the character of the urine which has rendered the material of the deposit insoluble. It is a mistake to suppose that the presence of a deposit of urates, uric acid, or phosphates, indicates that an excessive quantity of these substances is excreted. A deposit of urates simply indicates that the urine is concentrated, acid, or cold. A deposit of phosphates indicates that the urine is alkaline, and may be consistent with a diminished amount of phosphates in the urine.

The occurrence of calcium oxalate in the urine may be in itself indicative of a diseased condition, and a brief description of its source and the conditions under which it is found may be of service. Oxalic acid is nearly always excreted under this form. Oxalic acid may come from several sources. 1st, it may be ingested with the food; 2d, it may be formed by the imperfect oxidation of the acids formed by fermentation in the alimentary tracts; 3d, it may be due to imperfect oxidation of carbohydrates; 4th, it may be the result of the metabolism of uric acid.

It will thus be seen that oxalic acid is produced in conditions in which oxidation is deficient. Usually a condition of indigestion is also present.

The Corpuscle

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Commencing with the next issue THE CORPUSCLE will appear on the tenth of every month.

The rumors that Rush is to have new buildings are received with great joy on the part of undergraduates and of those interested in the college.

Ever since the college enrollment has reached its present proportions the need of more room and better accommodations has been but too apparent. Especially is this noticed in the dispensary, where the present quarters are almost totally inadequate to perform the work of that department. A new building or a remodeling of the present structure also means that new recitation rooms will be added. Under the present arrangement one of the largest sections in college is compelled to recite in an illy ventilated and darkened room, which was not designed for such purposes. There is also need of a new surgical amphitheatre. One of the greatest surgical clinics in the world deserves something better than wooden casings.

All of us live in hope that the rumors are founded upon facts.

SOME OBSERVATIONS UPON THE MOTOR SPINAL GANGLOIN CELL.*

By Martin H. Fischer, Rush, 1901.

It is the object of this paper to set forth some of the results obtained from the study of the motor ganglion cell. The material employed was the human spinal cord, and the spinal cord of the white rat and dog.

Upon the use of methylene blue, thionin, bismarck brown, safranin O, fuchsin, hematoxylin, carmine, eosin, acid fuchsin, orcein, and their combinations, I have found that the spongioplasm of the cell body has a honeycomb structure. It is seen as a network with nodal thickenings. It is amphophilic. The claim of Ewing that it is visible in specimens stained by methylene blue is supported by my observations, and I have further been able to demonstrate it in sections stained with safranin O, or fuchsin. No evidence of the fibrillar structure described by Heiman, Flemming, Golgi, Lugaro, Dogiel, Nissl, Becker, and others has been found.

Nissl has divided cells into those deeply stained—the pyknomorphous, those lightly stained—the apyknmorphous—and those occupying an intermediate position—the parapyknomorphous. Experimental study has shown that the three conditions are due entirely to technical processes employed.

Much significance has been attached to the appearance of the granule masses in the cell body which constitute the so-called Nissl bodies. The existence of these in the living cell is maintained by Flemming, Marinesco, Dogiel, Lenhossék, Heiman, and Arnold. Held considers them to be artifacts due to the action of acid fixing agents. Rudzicka also believes them to be artifacts, as he has never been able to find them in unstained cells.

My investigation of cells teased in normal salt solution, cells soaked in iodo-potassium iodide solution according to Arnold's method, and of unstained sections hardened in corrosive sublimate, alcohol, formalin, Müller's fluid, 2 per cent.

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*Read before the Chicago Pathological Society.

potassium bichromate, a mixture of alcohol and formalin, potassium bichromate and formalin, and after treatment with Weigert's mordant, shows the protoplasm to be generally granular, but no Nissl bodies are demonstrable in it.

My observation under the microscope of staining by methylene blue according to Nissl's method shows that at no time before the use of the differentiating alcohol does the protoplasm show anything save a general granular structure, with the densest aggregation of granules in the perinuclear region. No traces ef Nissl bodies are visible.

When alcohol is allowed to act upon the stained cell, an unequal lightening of the protoplasm occurs, and darker areas are seen scattered through it which correspond to the Nissl bodies which appear later. Upon the further use of alcohol the characteristic appearance of the Nissl bodies is obtained. A prolonged action of the alcohol causes the section to fade completely, and the structure of the unstained cell reappears. Upon restaining the cell, the arrangement of the Nissl bodies is by no means always found to be the same as that first observed. This latter fact I consider in itself a conclusive argument for the statement that the Nissl bodies are not structures which actually exist ready formed in the cell, but result from the action of certain substances upon its protoplasm.

Upon the observation of a series of stained specimens, these facts were noted in regard to the appearance of the Nissl bodies.

1. They are not seen when the cells are stained by hematoxylin or carmine.
2. They are seen in the hematoxylin specimens when these are differentiated in acid alcohol.
3. They are not seen in specimens stained with eosin, orcein, or acid fuchsin.
4. They are seen in sections stained in methylene blue, thionin, safranin O, bismarck brown, and fuchsin, but only after these have been differentiated.

Thus we are compelled to recognize the fact, that the Nissl bodies are demonstrable by no methods except those in which a differentiating agent is used. I believe the appearance of the Nissl bodies to depend upon certain physical conditions. Any barrier which prevents the action of the differentiating agent upon the stained cell, may give rise to such artifacts as the Nissl bodies. As an explanation of what might constitute such barriers, the following is offered:

Firstly. It has been noted that in the unstained cell the protoplasm is most granular just surrounding the nucleus. Now it so happens that the largest, deepest, and most tenaciously stained Nissl bodies also occur in the perniculear region. Galeotti and A. Fischer have already called attention to the fact that granules, closely arranged, absorb coloring matter much more intensely and destain with much greater difficulty than do loosely arranged parts. Such conditions are present in the case under our consideration. In staining, the color is deposited between the granules, but when the differentiating agent is employed, all parts of the cell protoplasm do not destain with equal rapidity. Those portions in which the granules are most closely arranged offer a barrier to the action of the differentiating fluid, and hence non-destained parts result. These portions of the cell protoplasm which have been able to resist the action of the differentiating agent constitute the Nissl bodies. Why the Nissl bodies should at one time occupy a certain position in the cell, and then show after destaining and restaining, another arrangement is a question which I do not attempt to answer.

Secondly. When methylene blue specimens are counterstained by eosin or acid fuchsin, it is seen under favorable illuminating conditions, that delicate red stained edges outline the Nissl bodies, which are identical in appearance with the reticulum of the cell body. This would go to show that the cellular reticulum serves as an effective protection against the action of the differentiating medium. Coupling this with the observation that the Nissl bodies when entirely destained do not show the same arrangement when restained, leads me to attribute the occurrence of a Nissl body in a certain position in the cell, entirely to chance. In brief, the Nissl bodies represent artifacts which under constant conditions give constant appearances.

It is now the generally accepted view that the nerve elements are independent structures. (Lenhossék, Golgi, Ramoney Cajal, etc.) Gerlach, by the use of gold chlorid, Held working with Golgi's method, Dogiel by the intravenous injection of methylene blue, Bethe with molybdic acid toluidin blue, aud Rudzicka using toluidin blue, maintain, however, that the independence of the cell elements is by no means a settled question.

My observations to determine the relations of the nerve cells to each other, and to the other structures of the spinal cord, have brought out some points which are at variance with the views generally held. The technics employed consisted in the use of formalin-hardened sections, stained for from one to twenty-four hours in methylene blue, dehydrated in alcohol, cleared in oil of cajeput, and mounted in Canada balsam.

In such sections the anastomoses between nerve cells consists of a common deudrite which connects the protoplasm of one cell with that of another. Usually this is by no means uncommon. For the most part this process is short, but often it may attain to a comparatively great length. The common dendrite is in every way similar to that ordinarily observed. It arises by a broad base from one cell, and its connection with the other is marked by a similar base. The Nissl bodies are clearly visible in the dendrite. Thus far, anastomoses have been observed only between cells of the same group, and never between cells of different groups. Golgi's method has also been employed and has several times shown anastomoses between three cells, while in one case five cells were apparently connected together. Anastomoses have also been found by Golgi's method in the cerebral cortex and basal ganglia of the white rat.

Sala, working with Golgi's method, has put forth the claim that the dendrites imbed themselves in the blood vessels. His position has been severely criticised by Lenhossék. That the dendrites do actually imbed themselves in the walls of the capillaries is to me an established fact. The tip of the cell process before it connects with the wall of the capillary widens out into a wedge-shaped end. This condition leads me to believe that the dendrites have besides the generally conceded nervous function, also nutritive function.

COLLEGE ITEMS.

Professor Senn returned from his vacation February first.

The pictures of the Junior and Sophomore classes were taken on the steps of the Clinical building the last Saturday in January.

A. P. Condon, '00, reported a case of hemachromatosis at a recent meeting of the Chicago Pathological Society.

C. W. West has been confined to his room with an attack of tonsilitis.

Professor Lyman being ill Professor Robinson conducted the Monday clinic in medicine.

Prof. James Nevins Hyde has returned after a short absence from the city.

A lively rush between the Sophomore and Freshman occurred the other Saturday morning.

During the recent cold wave two of the dignified (?) Seniors froze their ears.

Stowell, '00, is serving as interne at Tabitha Hospital, and lecturing to the nurses there, in addition to college work.

H. A. Watson's father has been spending a few days in the city.

Heard in the dissecting room. Freshman (from Dr. S- - w's section) "Doctor, does the transverse colon empty into the spleen?"

Sections K, L, M, N and O of the Sophomore class have finished chemical labratory work and have been examined.

A. O. Shaw has recently returned from the Presbyterian Hospital where he underwent a surgical operation.

One of Professor Brower's recent lectures on "Chorea and Allied Diseases," given in the Cook County Hospital, appears in the *Medical Standard* (Chicago) for February.

The course in Sophomore Pathology has been increased and greatly enlarged—as some of the members of that class are well aware.

J. R. Shuman, 1900, has just recovered from a severe run of typhoid fever. He will not re-enter college until the Spring quarter.

Dr. James B. Herrick returned from his trip to England during the holidays, and has resumed his Tuesday morning medical clinic at the County Hospital.

Isadore Singerman, ex-1902, decided that Chicago is too far away from home and has returned to Seattle, Washington, where he is now connected with his father's business.

But two Rush graduates have appeared before the Medical Examining Board of Virginia, since its organization, Jan. 1, 1885. Both were licensed on their first examination.

Professor A. C. Cotton has moved from 677 Jackson Boulevard to his new home at 1485 Jackson Boulevard.

Professors Bevan, Billings, Dodson, Ingals and Webster, who are "down East," were tendered a reception by the medical faculty of Johns Hopkins University, Baltimore, Md., the evening of the 8th. They are inspecting the prominent medical schools and hospitals of the East, gathering ideas for Rush's new building.

We publish below an interesting communication of a patient to one of our most noted faculty members:

Dr. ———

Dear Sir be so kind and let me know what is the matter whit that Place in back, it ach just like it was broke of i can not work or walk around I wished when i was up thear you would had cut my Back open I can not stand them Pains no longer it is Broke of or tourne inside be so kind and let me know it is. i tolk 8 bottles Medicine and it is just the same. Please let me know if there is a cure for it and oblige

——— — ———

P. S. i wish i had it cut open let me hear from you and oblige.

Prof. L Hektoen recently described a new pathogenic fungus, discovered by Schenck, before the Chicago Pathological Society. He made a number of examinations of subcutaneous abscesses on a boy's arm and hand, and found the fungus.

Professor Ingals in the treatment of tubercular laryngitis, has not found that the climatic gives the good results it does in pulmonary tuberculosis. At a recent session of the Chicago Laryngological and Climatological Society, he said that he usually advises patients to avoid high attitudes and seek rather the low, warm and dry ones. The South is better than the North, generally, for these patients.

Assoc. Prof. O. T. Freer is credited with the view that, in home treatment of consumption, (*Jour. Am. Med. Ass'n*, Feb. 10, p, 367), exercise, when fever exists, will increase this, and the rest treatment is indicated. The fever is not only due to the absorption of tubercle toxins, but to pneumonic and bronchitic inflammations. It is better to give less food than more than the stomach can take care of, as these patients are very apt to have indigestion. It is especially unwise to give fluid fats, although solid fats are indicated, as the muscles waste less than the fat of the body, but fluid ones, such as cod-liver oil, increase indigestion, perhaps by covering the solid particles of food with an oily coating. Of the fluid fats cream is the best. It is now the fashion to prescribe milk generously, but he does not think it wise to overdo this. He believes a dry diet is preferable. The fresh-air treatment is a matter of great importance, as it means the absence of bacteria; the air of rooms has more bacteria than the air of the streets.

Dahms' contribution, published in the CORPUSCLE last November, receives extended notice in the *Charlotte Medical Journal* for January—another evidence of the excellence of investigations carried out by Rush men.

Some of our professors are in training for an indoor baseball match, both nines to be composed of Chicago practitioners.

Dr. Arthur M. Corwin filled Prof. Ingal's leture hour, while the latter was away recently.

Ass't Prof. E. R. LeCount has a paper on "Lymphoma, Benign Tumor Representing a Lymph Gland in Structure," in the *Jour. of Exp. Med.*, *IV.*, Nos. 5–6. He goes at length into the microscopy. Two full-page plates accompany the article.

Dr. Olney has charge of Prof. Bevan's section in topographical anatomy.

As in former years, Professor Cotton has requested members of the senior class to prepare papers on various diseases of children. The first of the series of papers was read by Mr. G. W. Roberts, the subject being "Typhoid Fever." Mr. O. B. Brown selected "Anemia in Children" and read an instructive paper on the subject January 12, Asst. Prof. A. I. Bouffeur read a paper befor The Kansas City Academy of Medicine, recently.

A. C. Johnson now rooms at 731 Jackson Boulevard.

Messrs. A. W. White, J. R. McKirahan and R. S. McCaughey have moved from 688 to 705 Adams street.

Among the several books which are said to be nearing completion at the hands of members of the faculty none is more eagerly awaited than is the "Practice of Medicine," by Professor Frank Billings.

The following is from *The Medical Review* (St. Louis): The relation of Rush Medical College to the University of Chicago is not clearly understood by the public. It is said to be an "affiliation," but is not the medical department. In partial this amounts to the same thing, excepting in so far as the governing of the college is concerned, and it keeps the financial affairs of the school apart from those of the university. When it becomes a part of the university it will of necessity have to be endowed, and would then come under the trustees of the university. The present relation, while a very close one, is not of that character. A majority of the trustees of Rush College are also trustees of the university. It is to be hoped that the curricula of the college and the university may be so arranged that the medical sciences alone will be taught by the college, and such subjects as botany, chemistry, electrotherapeutice, anatomy, physiology, and psychology, taught by the university, leaving the application of these sciences, so far as they relate to the practice of medicine, to the medical faculty.

ALUMNI NOTES.

'99. Dr. Art Randolph spent a few hours about the college recently.

'98. In the abscence of Dr. H. B. Stehman, Dr. A. F. Stevenson, a former editor of the CORPUSCLE, whose internship terminated recently, is acting as medical superintendent of the Presbyterian Hospital.

'97. Dr. Randall has been spending a few days in the city.

'96. J. D. Freeman, ex-interne of the Presbyterian Hospital has been spending a few days at Rush. Dr. Freeman is now surgeon in charge of the Santa Fe Railway Hospital at Topeka, Kan.

'93. William G. Frazier, of Findley, Ill., died on Oct. 6, 1895, at Fernandina, Fla.

'92. Dr. R. B. Dugdale is now serving his third term as coroner of St. Joseph County, Ind.

'87. Leslie Eugene Teft died at Elgin, Ill., on Dec. 29, 1899.

'82. Dr. E. S. Pettyjohn, Alma, Mich., medical superintendent of the Alma Sanitarium, is favored with a full-page half-tone in the *Med. Herald* for December. In the same number he has a paper on "Diabetes and its Constitutional Treatment."

'82. Dr. M. L. Harris, Chicago, was recently chosen attending surgeon at St. Luke's Hospital.

'80. Dr. J. A. Robinson, Chicago, recently read a paper on the "Home Treatment of Consumption," before the Chicago Laryngological and Climatological Society. He urged open air and especial attention to the hygienics and dietetics of the patient. The doctor also had a paper entitled "Evidences that Bovine Tuberculosis is Communicable to Man by Direct Contact, or by Food Infection," in the *Jour. Am. Med. Ass'n.* of January 27.

'79. Associate Prof. O. T. Freer held Prof. Ingals' clinic during the latter's recent absence from the city, noted elsewhere.

'79. Dr. S. Bailey has prepared a list of his classmates with their present addresses, and had it printed in very neat form. Dr. Bailey has the CORPUSCLE'S thanks for a copy.

'79. Chauncey Williard Amy died of pneumonia at his home in Decorah, Ia., on Jan. 29, 1900.

Changes in the dispensary's staff occurred in January, Dr. C. A. Ullerick, '93, formerly the house physician resigning. He has opened offices in the Medinah Temple, Fifth Ave. and Jackson Boul. Dr. W. W. Meloy, '97, is now house physician during the morning hours and Dr. O'Connell in the afternoons.

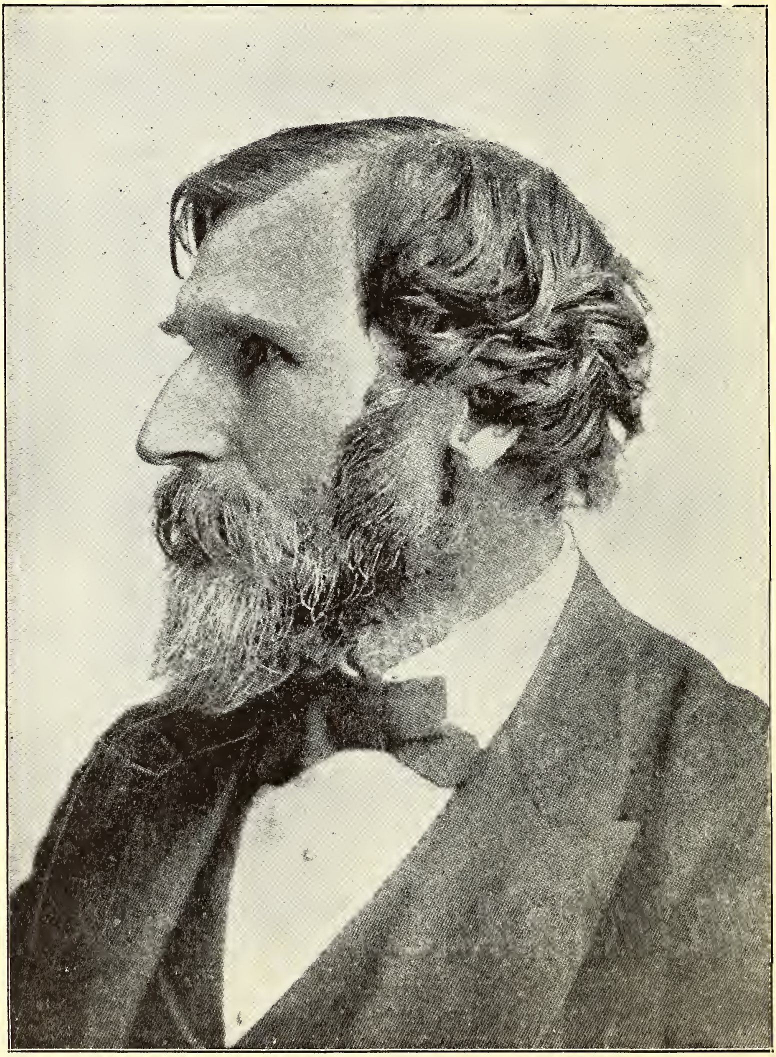
The Department of Obstetrics needs specimens for demonstrations in the practical courses. The college is willing to pay a reasonable amount for such specimens and requests that alumni or other physician who may be able to assist the obstetrical department will communicate with the college officers. The college will send for the specimens so as to cause no trouble to the physician excepting the letter stating where the specimens may be found.

BOOK NOTICES.

LOVELINESS. By Elizabeth Stuart Phelps. Cloth. Boston. Houghton, Mifflin & Co. 1899.

This little volume is the story of a dog known as Loveliness, and is written in the interests of the antivivisectionists. It is a story showing the commotion into which a certain professor's family was thrown by the loss of the little daughter's pet dog, which was afterward found and rescued from a medical experimental laboratory. The harm that a story of this sort may do, coming as it does from the pen of one so prominent as is its author, is sufficient reason for quoting the following fitting editorial comment from the *Medical Standard* for February, though somewhat at length:

> * * * It is a story with a purpose, evidently intended to rebuke the wicked world which insists that animal experimentation is essential in solving the problems of disease. It is written in Mrs. Phelps' well-known clearness and purity of style, breathing the earnestness of a heart filled with the consciousness that it bears an evangel of mercy to the outraged and suffering. It appeals to the emotions and prejudices of the mass, evidently with the purpose of urging them to enter upon this crusade—and therefore is dangerous because its foundation rests upon an entire misconception of the methods, nature, scope and necessity of animal research. Shall we go farther and say that it is built upon falsehood, when the implication goes forth that the members of our profession, or at least its eminent leaders, are monsters of crulety, delighting in the unnecessary pain which they inflict upon helpless animals,—men who serve rich and poor alike with equal compassion, devoting their talent, their substance, often their lives, to the alleviation of human suffering? Mrs. Phelps draws a graphic picture of a little silver Yorkshire terrier, a rich man's pet, "stretched, bound, gagged, gasping, * * * kissing his vivisector's hand." Parallels are sometimes instructive. The Chicago Board of Health says that the antitoxin treatment has saved the lives of more than 1,700 children in this city alone. Picture, if you will, a little one on its bed of torture, burning with fever, gasping, choking, tearing at its throat in the struggle for life, and say if you can that the poorest, most wretched and miserable of these is not worth your little canine aristocrat taught to "sit on an eider-down cushion embroidered with cherry-colored puppies on a pearl satin cover."



EDWARD LORENZO HOLMES.

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In Affiliation with the University of Chicago.

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EDWARD LORENZO HOLMES.

"May each of you grow old and wear out in the service of others." This was the wish President Holmes expressed in his farewell to a graduating class of Rush Medical College. It was his ideal of a successful life; and to us who loved him because we knew him, the thought that he was so rarely fortunate in the attainment of his ideal, tempers our grief as we pay tribute to his memory. He did not live to an unusual age, but up to the day he completed his three score and ten years, he gave his active interest and his valuable service to his chosen work and to the institutions he had helped to found and support.

Edward Lorenzo Holmes was born in Dedham, Massachusetts, January twenty-eighth, 1828, his parents being Edward Bailey Holmes and Caroline Buttrick Holmes. His mother was the great granddaughter of Major John Buttrick, who commanded the Revolutionary troops at Concord. As a boy he lived in the town of his birth and attended the schools of Dedham and Westfield. For three years before entering college he walked daily three miles to the school at Westfield, hardly missing a class. When he was fourteen years of age two incidents occurred which incited him to pursue a course in Harvard College. A cousin who had just been graduated from Harvard, at the age of seventeen, came to Dedham and interested young Edward Holmes in the fascinations of student life in the neigh boring town of Cambridge. But a deeper and perhaps more serious interest in higher education was stimulated by an association with John Lathrop Motely, the historian. Mr. Motely, who at that time was living in Dedham, invited the boy to help him in the unpacking and arranging of a large collection of works of ancient and modern literature. In after years Doctor Holmes often alluded to the inspiration which he received from talks with the great historian, and the desire that was awakened in him to know about the books over which he had been working.

In the fall of 1845 he entered Harvard and throughout the whole college course lived at the home of the Rev. Dr. G. R. Noyes, Professor of Hebrew in the Harvard Divinity School. Mrs. Noyes was a cousin of Edward Holmes' mother, being the grand-daughter of "For-God's-Sake-Fire" Buttrick of Revolutionary fame; and in this home the young student found congenial company and an atmosphere of culture which must have had a lasting influence on his character. The student life of his time lacked many of the comforts which Harvard undergraduates enjoy to-day; and although his surroundings were considered particularly agreeable he wrote of his experience: "My room was under the eaves and I boarded in the 'Commons' in the basement of old University Hall. I studied diligently in my room, sawed my own wood, and kept the room in order." Writing recently of his college life Dr. Holmes said: "My college course was uneventful, and yet laid the foundation of my satisfaction and happiness in life—and what success has come to me. I was specially fond of the sciences and mathematics. A friend gave me the advice to pay particular attention to the languages as bringing the mind in closer relation with human affairs, and as containing the keys to knowledge. So I took the required studies in mathematics and science, and devoted much time to Latin. Greek, French and German. * * * * * * One incident in college life I delight to recall, and dwell upon—trifling it seems, and yet leading to important results. I early made the acquaintance of my class-mate Gamalich Bradford, who had his room near Professor Noyes. His sister was intimate with the family of Longfellow. When we commenced to study German, and to write in that language translations from English, we agreed to buy keys and not only to write our sentences, copied from the key, but to learn them by heart. Our teacher, Bernhard Roenker, probably mistrusted us for he always found our written exercises perfect, and soon began to ask questions in the class-room, We always were able to repeat off-hand, any sentence he gave us. Soon after, he stopped us on the street and asked us if we were particularly interested in German. Receiving an affirmative answer, he arranged to give both of us three lessons a week during the remainder of the term. The next term precisely the same offer was given by Longfellow. Mr. Longfellow was a most delightful and instructive teacher. Without the experience of that term I should probably never have held the poet in so deep veneration. Bradford became a noted banker, and writer on financial and economic subjects."

An early love of music, which never left Dr. Holmes, led him during college days to join the "Musical Union", a society composed of the choirs of Cambridge churches. In this way he learned opera choruses and portions of oratorios. He was also a member of the college choir. The earnestness of the student, Edward Holmes, is shown by his sojourn during the spring and summer vacations of 1845, at West Roxbury, Massachusetts, whither he had walked to become a member of the famous "Brook Farm" colony. One need but review the interesting attempt of New England scholars to establish at "Brook Farm" an ideal, intellectual, cultured, Christian colony, to appreciate the purpose and character that would lead an active boy of eighteen years to spend his vacation amid such surroundings. Undoubtedly the home influence was favorable to his residence in the colony, for the Holmes family were members and regular attendents of the Dedham Unitarian Church, whose doctrines were those of "Brook Farm." In 1842 the settlement at West Roxbury had become "Fourier Colony", pledged to educate Christian youth, and among the teachers attracted were many of the most noted savants of the time. Edward Holmes sat under three of the most famous: John E. Dwight in Latin, Charles A. Dana in Greek, and George Ripley in Literature. The last of these three was universally recognized as the foremost American critic of literature, and the effect of his teaching was reflected in his student's essay presented upon graduation from Harvard on "Mutability of Literary Fame." Edward Holmes' degree of A. B. was given him *Magna cum Laude* in 1849.

As proof that his honors were deserved he was at once appointed teacher of Latin, Greek, French and Mathematics in the Roxbury Latin School; and was made tutor to Edmund Quincy, the son of Josiah Quincy, President of Harvard—a worthy son who developed into a finished scholar and became an influential factor in the anti-slavery movement. During his tutoring and teaching, Edward Holmes found time to accept and complete the work of a complimentary commission as one of the American revisors of the bible. His mind meantime had become somewhat diverted from language and mathematics to the study of medicine; and after two years of teaching he entered the Harvard Medical School. His work here was a hard, daily grind, and upon receiving his degree of M. D. in 1854, he was rewarded for his excellent scholarship by appointment as surgical interne to the Massachusetts General Hospital. After a year's service as interne he went to Europe with the determination of making a particular study of diseases of the eye and ear. He studied in Vienna, Berlin and Paris, and with the benefits of his preparatory education and fixed habits as a student, succeeded in accomplishing more than his plans embraced, pursuing a general course of medical study in addition to his special work. His teachers were Jaeger, Sichel and Desmarres in ophthalmology; Maisonenve and Malgraine in surgery; Braun and Dubois in obstetrics; Oppolzor, Trousseau, Valliex and Piorry in medicine; Rokitansky in pathology; Hebra in skin diseases, and Skoda in chest diseases—a list of many of the most distinguished European teachers of that period. After a year and a half abroad, early in 1856, he returned to America on a sailing vessel. It was an eventful voyage lasting sixty-seven days. The captain was most brutal, the crew inadequate, and the crowd of passengers motley. The officials inspected the ship before its sailing and found a crew of fifty on board. After the departure of the officials, the fifty were secretly landed and a drunken lot of sailors returned in their stead. There were over six hundred passengers, mostly Morman pilgrims. Very few medicines were shipped and Dr. Holmes, powerless to assist, watched over fifty passengers die. These catastrophes, however, had been anticipated by the ship's officers, who had loaded paving stones onto the boat for use in sea burial.

On finally arriving safely in America, Dr. Holmes began preparations for visiting the West with a purpose of selecting a permanent location. Specialism in medical practice was comparatively new and he decided that the West offered the best opportunities for a young man of his ambitions. He visited first Buffalo, then Detroit, and finally Chicago, when he took up his residence in the fall of 1856. The influence of Dr. Holmes' purposeful activity, backed by his splendid professional equipment was soon made manifest in the crude western city. He became a factor in almost every enterprise for the development of educational systems, or for the attainment of higher culture. The privilege, because of his qualifications, of being one to help mould the character of a great city in its formative stage, was an opportunity he did not neglect. His name was one of the first on the rolls of the Chicago Historical Society, in whose meeings he was active, and for whose library he gathered in the East many valuable books, pamphlets and papers. He was one of the few to organize the Unity Church, which became Robert Collyer's charge. Later he was a trustee of the Third Unitarian Church.

It is, however, but natural that his greatest influence should have been exerted over the betterment of the medical profession in his community. It has been said of him that no medical society or institution of importance has existed in the State of Illinois, that has not been benefitted either indirectly or directly by his influence. He has held active, life, or honorary membership in a great many national, state and local medical societies; and has been honored by election to the presidency and other offices in their gift. The societies in which he took the most interest were the Illinois State Medical, Chicago Medical, American Ophthalmological, Chicago Ophthalmological, American Medical Association, and Chicago Pathological—the first four of which he served at different terms, as president or vice-president. In 1866 he was made one of the editors of the *Chicago Medical Journal*, the forerunner of the *Chicago Medical Recorder*; and throughout his professional career, particularly before failing in health in 1885, he was a regular contributor to current medical literature. The *Index*

Medicus and Surgeon General's Catalogue list over fifty titles of his work, most of which were relevant to the eye and ear. Although Dr. Holmes' writings were for the most part confined to technical subjects, his interest in literature was broad. Since early youth he was accustomed to do some daily reading in Greek, Latin, French or German, and with equal constancy he devoted time to reading general literature, past and present.

He was one of the earliest, perhaps the first medical specialist in Chicago and in the West. Up to 1871 he combined with his eye and ear work a general practice, but since that date strictly limited his work. His office was the Mecca of many a pilgrimage from cities, villages, farms and ranches over the West, before practitioners of his specialty became scattered over the country. And later he was often the consultant sought by these new specialists who found his kindness, generosity and courtesy equal to his great knowledge.

His professional skill and his scholarly attainments achieved for him not only a lucrative practice, but gained the recognition of men of letters. Hamilton College in 1881 bestowed upon him the honorary degree of Master of Arts, and in 1891, at the commencement following his election to the presidency of Rush, Lake Forest University conferred upon him the honorary degree of LL. D.

With this general review of the early life and preparation of Dr. Holmes, and recognition which his worth was given by his fellow men, we may understand the success that attended his efforts in the establishment or in the development of the three Chicago medical institutions from which his name shall never be disassociated: The Illinois Charitable Eye and Ear Infirmary, The Presbyterian Hospital, and Rush Medical College. When in 1858 Dr. Holmes started a free eye and ear hospital it is doubtful if another such institution existed in an American city of the size Chicago then was. But, aided by W. B. Ogden, the first mayor of Chicago, and by W. Blatchford and other progressive philanthropic men, the progress of this hospital was so rapid that in 1865 it came to the attention of the State Legislature, who passed a special bill in its support, and in 1871 adopted it as a State Institution under the name of The Illinois Charitable Eye and Ear Infirmary. Dr. Holmes was not only the founder and supporter of this hospital but was its chief surgeon from the day of its inception in 1858 until his resignation two years ago, when unfortunate political influence seemed to jeopardize its future. The sacrificing work he had done for this institusion, his thirty years of professional service, and the realization of the vast good it had accomplished made this charity very near to Dr. Holmes' heart.

The founding of the Presbyterian Hospital must be credited principally to Dr. J. P. Ross; but the valuable, sagacious assistance given by Dr. Holmes did much for the early development and substantial footing of the institution. The perfecting of details in the general plan for the establishment of the hospital, and the assuring of its support by effecting an amalgamation with Rush Medical College, were chiefly the work of Dr. Holmes. The first patient admitted to the new hospital was assigned to his service, and for years he presided over the attending staff, and gave his wise counsel in the policy of the institution.

It is, however, from Dr. Holmes' connection with Rush Medical College that he is most widely known. He has been actively interested in the institution since the days of its early struggle, and he has said: "It has been my privilege to have known well, almost without exception, all who have ever been members of the Board of Trustees or of the Faculty of Rush Medical College." Every class that has been graduated from that school since 1859, has sat under his teaching. Throughout the states and territories of this country, and in the far lands of the earth, are men whose lives are dedicated to the relief of suffering and the prolonging of human life, who remember not alone his words of wisdom and technical teaching, but who bow in grief at the thought that he who gave them the example of the sympathetic, courteous, scholarly physician has been taken from among men. Dr. Holmes was lecturer of ophthalmology and otology in Rush from 1859 to 1869, and was full professor of the same from 1869 to 1898, when he was made Emeritus Professor, which honorable title be bore at the time of his death. In 1890 upon the death of President J. Adams Allen, Professor Holmes was elected to the presidency of the college, a position he filled until 1898, when, upon his seventieth birthday, he resigned. He was also a trustee of the college from 1871 until 1898. As a lecturer and clinician Professor Holmes was eminently successful in imparting knowledge. His vast experience, and his great resources added interest to his class work. His services were sought by other institutions and in addition to his work at Rush he was for a time Professor of Ophthalmology in the Chicago Polyclinic. Before his classes he was ever punctual, patient and considerate. His instruction, was always practical, and nothing pleased him in his work more than the eager interest of a pupil in some salient point of his discussion. Even when he sat in the president's chair, no student was refused a personal interview and a painstaking explanation of any troublesome problem in his work. As president of the college he conducted the functions of his office in quiet dignity; never impulsive, impassioned or spectacular; but ever ready, reliable and satisfactory. When called upon to address an assemblage his words were always well-chosen and felicitous. His familiarity with the ancient and modern classics made his writings and utterances conspicuously scholarly.

There is no grrduate of Rush Medical College who will not bear testimony as to his popularity among his students. The respect—aye, the love—which the students of Rush bore him as their president is rarely so universally bestowed upon men of such position. He was easily approachable to them, he was sympathetic with them. he was tolerant of their shortcomings; yet the familiarity this might imply bred no contempt, but bred respectful admiration and obedience to his wishes. In matters of college policy he held the admiration of his colleagues in educational work. His pedagogy was not merely theoretical, nor was it too radical for the welfare of the college. He formulated plans for the college, which he unfolded to the faculty from time to time, and in which he had their hearty co-operation. Nor in his conduct of college affairs was he unmindful of the student-body or of the alumni. It was his custom, when considering a proposition in which the students were to be particularly interested, to invite undergraduates to his home for discussion with them of his plans, and to give a considerate hearing to their views on the subject. With the alumni he communicated in the same way, and it was his earnest desire to keep active the interest of alumni in the college. The erection of the class-tablets; the establishment of college organizations; the fostering of traditions, songs and ceremonies peculiar to the college; the successful continuance of the CORPUSCLE—all of these interests he fathered and not only gave his council and work to their support but aided them by substantial gifts. It was his belief that these measures would bind the great roll of alumni closer to the college and bring the benefits of their assistance. It may be said that the changes in the college curriculum, from teaching by lectures and large clinics, to the minimizing of the number of lectures, introduction of quizzes in small sections, organization of laboratory work, and the development of the dispensary clinics are largely due to his influence—and that the college, as it stands to-day, represents a high stage toward the consummation of the plans of President Holmes. Appreciating the advantages of the collegiate course he had enjoyed, his plea was ever for a higher standard of preparation for entrance. In one doctorate address he earnestly advised those graduates, whose entrance preparation had been deficient, to acquire in the early days of their medical practice at least a meager knowledge of modern and dead languages, literature, history, the sciences, and mathematics. Thirty years of unselfish, zealous, valuable service he gave to Rush Medical College, and in return is given the love of thousands of sons of Rush, and their appreciation that the influences he has started and the inspirations of his wisdom and his example shall pass from son to son and to those about them—"though many men shall know it not."

In the private character of Dr. Holmes there was no place for that which is intemperate or coarse. His tastes, his preferences, were ever for refinement and virtue; but he lost nothing of strength and manliness. He was serious and studious, but never pedantic. As such a character bespeaks, his home life was one of culture, affection and peace. His wife was Paula Wieser, the daughter of a prominent Austrian family into whose home he had been introduced in 1855, while a student in Vienna. The long ocean voyages and difficult journeys across the wide land served only to deepen the affection that had sprung up between these young people; and the wedding which was solemnized in 1862 ended the romance of Dr. Holmes' life, and began a happy, peaceful married career. Their sons and daughters have grown to useful, accomplished manhood and womanhood, and have added honors to the name. Dr. Holmes' visits at the former home of his wife in Vienna were among the pleasantest experiences of his life. His brother-in-law, Baron Leopold von Wieser, who before his retirement was an adviser to the Emperor in the Virklicher Geheimrath and one of the most prominent men in Austria, introduced Dr. Holmes to the noted men of government and university life in the capital. It was in this way that he met Professor Billroth, the intimate associate of Baron von Wieser, and began a friendship that was continued by letter and visit until the death of the great clinician in 1894.

Of his love of music, to which allusion has been made, Dr. Holmes was wont to say that, of factors which had influenced his life, music had been the most constant. He laid particular stress on the effect which "Haydn's Creation" always had upon him, from the first time he heard it at the invitation of his Harvard college-mate, Alexander W. Thayer, later the well-known musical critic and biographer of Beethoven. And one of these influences of music had been to strengthen the sympathy between Billroth and himself, for Billroth was accounted one of the most finished amateur performers and musical critics of Vienna. Brahm, the composer, considered his opinion so valuable that he almost invariably produced a new work first at Billroth's home for criticism.

Death mingled the bitter with the sweet in Dr. Holmes' home life; and disasters, such as the great fire of 1871, came to him with a strain that would have crushed a weaker man—yet his home is to his friends a sweet, happy memory and a charming example of the acquirements of greatness without the sacrifice of the simple, pure, satisfying enjoyment of the home fireside.

During the last years of Dr. Holmes' life, his strength lessened markedly, though his mind was active, and his interests and sympathies quick. He had "worn out in the service of others." He was stricken with pneumonia, and after a brief illness, on February 12, passed from this world to the new life.

As we say farewell to him, and our thoughts are of his goodness and his greatness, we feel the privilege it was to have had his example and to have known one who lived as The Master would have wished.

ARTHUR TENNEY HOLBROOK.

NOTES ON URINALYSIS.

By J. H. Salisbury A. M. M. D. and O T. Roberg M. D.

[Continued from February Corpuscle.]

Microscopic Examination of Sediments: The sediment may be made up of organized and unorganized elements; among the organized or anatomical are epithelial cells, blood corpuscles, tube casts, spermatozoa, tumor fragments and bacteria; the unorganized or chemical sediments consist of urates, uric acid, phosphates, calcium oxalate, leucin, tyrosin, cystin, etc.

If the urine is turbid the nature of the turbidity may first be determined by chemical tests q. v. supra. The turbidity is most frequently due to precipitated phosphates and urates, pus and bacteria.

To collect sediment for microscopic examination, the urine, preferably the 24 hour specimen after having been made aseptic by chloral, is poured into a percolator of about one liter capacity; into the lower end of this is fitted a perforated stopper in which is fixed a glass tube to which a small rubber tube is attached which is closed and opened by means of a pinch cock. The urine is allowed to stand for twenty four hours, when the lower-most portion, which contains the sediment, is drawn off into the centrifuge tubes and centrifuged for from three to seven minutes. If no centrifuge is at hand, the urine drawn off from the percolator will often contain enough sediment for examination without centrifuging. If amorphous phosphates or urates have been precipitated in sufficient quantity to obscure other substances present in smaller amounts, they should first be cleared up; the former by the addition of a few drops of acetic acid and the latter by gentle warming. A pipette of small caliber is closed at the upper end by the finger and passed to the bottom of the tube. The finger is now removed, the sediment allowed to rise in the pipette and by this means transferred to a glass slide for examination.

Too much stress can not be laid upon the necessity of proper regulation of light for the detection of certain forms of crystals and casts; it is as essential as focussing. The microscope should be provided with an Abbe condenser and an iris diaphragm. Every field should be examined in light of varying intensity, as certain substances are seen only when the field is darkened, while others require bright light in order to be recognized.

Amorphous urates and amorphous phosphates appear as granular masses of no definite structure. The former dissolve in alkalis and when warmed, the latter in acetic acid.

Uric acid crystallizes in various forms, the primary form being the rhomboid prism with rounded angles. Most other forms are modifications of this. The four angles may be equal forming a square prism; the acute angles of the primary form may become very pointed and the obtuse angles rounded, giving an elongated ellipsoid shaped crystal. These are the most common varieties. Uric acid crystals exhibit a tendency to coalesce or group together, forming pretty star and rosette shaped aggregations. The crystals are almost invariably colored a yellowish red which is quite characteristic. See fig. 1.

Sodium acid urate occurs sometimes together with uric acid, usually amorphous, rarely crystallized in elongated needle-like prisms, resembling calcium phosphate crystals from which they can be distinguished by their solubility in liquor potassæ.

Calcium oxalate crystallizes usually in regular octahedra, occasionally in dumbbell shaped crystals and rarely in round disks with lines radiating from the center, resembling leucin. The latter is readily soluble in alkalis, while the former is insoluble. The octahedral crystals are frequently called envelope crystals as their lines resemble the reverse side of an envelope. Calcium oxalate crystals occur in either acid or alkaline urine. They are soluble in hydrochloric acid and insoluble in acetic acid. See fig. 2.

Ammonio-magnesium phospahte (triple phosphate) occurs only in urine that has undergone the alkaline fermentation; the crystals may be deposited while the urine is still neutral in reaction. They crystallize in triangular and quadrangular prisms with bevelled edges; the latter are commonly called coffin lid crystals. Less frequently the triple phosphate occurs in the form of feather or fern shaped crystals which are usually arranged in the form of crosses, stars and rosettes. If ammonio-magnesium phosphate is found in the urine immediately after it is voided, it indicates that the urine has decomposed in the bladder, which means that the bladder is infected. See fig. 3.

Ammonium urate occurs sometimes with the triple phosphate in the form of spherules with small spinous processes, called "thorn apple crystals". *Leucin and tyrosin* occur in the urine in acute yellow atrophy of the liver and in phosphorus poisoning. Leucin crystallizes in spherules with concentric lines and in round disks with striæ radiating from the center; tyrosin in long needle shaped crystals frequently arranged in the form of rosettes or sheaves. Leucin and tyrosin are almost invariably found together. They are soluble in alkalis. See fig. 4.

Epithelium. Epithelium occurs normally in small quantities. It may be derived from any part of the urinary tract. In diseased conditions the number of epithelial cells thrown off may be very large. There may be squamous. columnar, transitional and round epithelium. Most of these are easily recognized by their shape, their large size, the single nuclei, etc. The round epithelium is distinguished from the pus cell by its large single and distinct nucleus which is seen without the addition of acetic acid. These round epithelial cells are said to come from the kidney tubules and when present in considerable quantities are indicative of kidney lesion. See fig. 5.

Blood Corpuscles. In fresh urine the blood corpuscles retain their normal characteristic appearance. Their size, biconcave shape, color and absence of nucleus suffice for their identification. Upon standing they may swell to two or three times their normal size, lose their color and resemble pus cells from which they are distinguished by the absence of nuclei and by their usually homogeneous structure. If the blood cells are present in sufficiently large quantities the urine gives a blue color when added to a mixture of dil. tincture of guaiac and ozonized turpentine.

Blood occurs in the urine in congestion of the kidney, acute nephritis, tuberculosis of the urinary tract, tumors, tra-

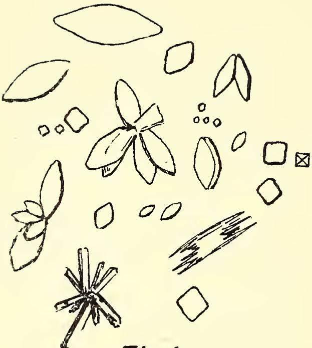


Fig. 1.

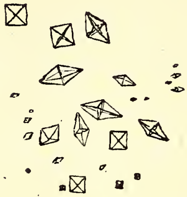
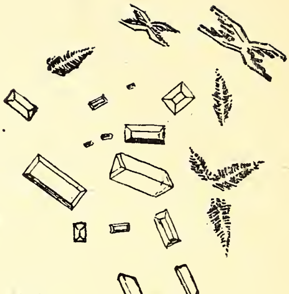


Fig. 2



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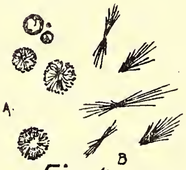

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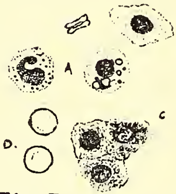
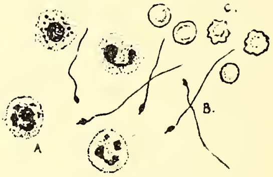


Fig. 5



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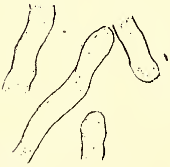

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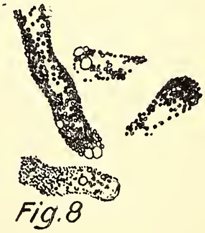

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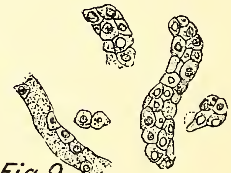

Fig. 9

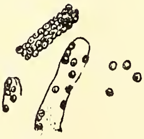

Fig. 10

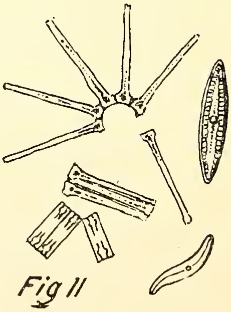

Fig 11

M. H. Fischer — Rec

Fig. 1. Uric acid.
Fig. 2. Calcium oxalate.
Fig. 3. Ammonio magnesium phosphate.

Fig. 4. A. Leucin. B. Tyrosin.

Fig. 5. A. Leucocytes (Pus corpuscles). B. Blood corpuscles. C. Bladder epithelium. Obj. 7.

Fig. 6. A. Leucocytes (Pus corpuscles). B. Spermatozoa. C. Red blood corpuscles, some are degenerated and hence crenated. Obj. 7.

Fig. 7. Hyaline casts. Obj. 7.

Fig. 8. Granular casts. Obj. 7.

Fig. 9. Epithelial casts. Obj. 7.

Fig. 10. Blood casts. Obj. 7.

Fig. 11. Diatoms. Obj. 7.

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uma, calculus, purpura, urethritis, etc. Blood casts, when found are indicative of hæmorrhage into the tubules of the kidney. See figs. 5 and 6.

Pus cells are about twice the size of red blood corpuscles, are highly granular and have two or more nuclei. Upon the addition of acetic acid these nuclei become distinct and the granules dissolve and disappear. If the urine stands for some time, the pus cells become much modified in shape. If alkaline fermentation has set in, the pus cells lose their identity entirely. The pus then becomes converted into a thick, viscid, gelatinous mass. Liquor potassæ when added to urine containing pus produces the same condition. Pus also gives to the mixture of tincture of guaiac and ozonized turpentine a blue color which is distinguished from that produced by blood by disappearing when moderately heated. It should be borne in mind that urine containing blood or pus gives the reaction for albumin.

Of all sediments, pus is most frequently found. It occurs in almost all abnormal conditions of the urinary tract. It may even be found in such slight irritation as is caused by highly concentrated acid urine. Urine containing pus is frequently alkaline in reaction when passed, and if not, soon becomes so upon standing. In chronic cystitis it is usually alkaline in reaction, while in acute cystitis or pyelitis it is commonly acid. See figs. 5 and 6

Casts: Casts are formed in the tubules of the kidney, by shedding of the epithelium, or by exudation into the tubules of material which becomes coagulated. In size casts vary from one to four red cells in thickness and from four to fifteen in length, usually maintaining a proportion of about one to four or five. Casts are generally sausage shaped, having nearly parallel sides and hence are of nearly uniform thickness throughout; the ends when not broken off are rounded and the edges are very indistinct. Most are very feebly refracting, the edges not any more so than the body.

Hyaline casts: The hyaline casts are perfectly homogeneous and structureless. Of all sediments they are least refracting and most difficult to detect; they appear as mere shadows of definite form. Their detection requires most careful focussing and a field almost dark. These casts are found in normal urine in small numbers and then have no clinical significance. In larger quantities they are diagnostic of interstitial nephritis, when associated with other symptoms of that disease as large quantity of urine of low specific gravity containing a small quantity of albumin, high arterial tension, cardiac hypertrophy, etc. See fig. 7.

Granular casts are characterized by their granular structure. They are formed of degenerated elements such as epithelium, blood and pus cells. The presence in urine of this form of casts is diagnostic of degeneration of the parenchyma of the kidney. They are generally found in parenchymatous nephritis. See fig. 8.

Epithelial casts consist of agglutinations of kidney epithelium that has been shed, or of cylinders of epithelium that have been exfoliated, or of other forms of casts to which epithelial cells have become attached. They are usually found together with granular casts in parenchymatous nephritis although in much smaller numbers. See fig. 9.

Blood casts are formed by extravasation of blood into the kidney tubules. They consist of red cells cemented together in the form of the tubules. Frequently a few blood corpuscles are attached to other forms of casts. The finding of these casts is always diagnostic of hemorrhage from the kidney, whether produced in Bright's disease, tuberculosis, tumor, hemorrhagic infarction, trauma, etc. See fig. 10.

Pus casts are made up of pus cells.

Fatty casts are moulds that have undergone fatty degeneration. They are said to indicate a tendency to fatty degenetation of the kidney.

Waxy casts resemble hyaline casts, but are more highly refracting and usually larger. They are frequently contorted, bent upon themselves and constricted in places. They are sometimes found in amyloid kidney and only rarely give the amyloid reaction with iodine.

Cylindroids are long drawn out narrow moulds of mucus with one or both ends pointed, thus not resembling the typical cast. They are found normally in small quantities, but when found persistently and in larger numbers, they are thought to be forerunners of interstitial nephritis. They may perhaps indicate a slight catarrhal condition of the kidney.

In urine that has decomposed the field may teem with bacteria which can not be mistaken for any thing else.

One should be thoroughly familiar with the microscopic appearance of extraneous substance that may be found in the urine such as hair, wool, cotton and silk fibres, fungi, air bubbles, desmids, diatoms, etc., so that these substances may not be mistaken for others. See figs. 11 Diatoms.

NORMAL CONSTITUENTS OF URINE—ORGANIC SUBSTANCES.

Urea or carbamide $CO(NH_2)_2$ is the principal organic substance of the urine constituting about one-half the total solids of normal urine. It is the chief product of the metabolism of the proteid food and varies almost proportionally with the nitrogen ingested with the food. The question is often asked what is the normal amount of urea in urine? To this question no positive answer can be given. The amount varies with the diet so that only an average can be stated. The average is about 2% or about 30 gm. per day. An increase occurs with an abundant meat or proteid diet, forced muscular exercise, fevers, and wasting diseases. A decrease occurs with insufficient proteid food, in rapid growth as in children, in convalescence from wasting disease, and in cases where the function of the kidney is impaired. In the latter case it is sometimes excreted by the skin. Urea undergoes fermentation under the influence of various micro-organisms and becomes converted into ammonium carbonate. This affords a means of determining the urinary character of a fluid that may be sometimes useful. A fluid consisting of urine or containing much of that fluid will develop ammonia in a short time if inoculated with a drop of decomposing urine and kept in a warm place.* A more exact test for urea is afforded by the precipitation of crystals of urea nitrate. The suspected fluid must be concentrated to a small bulk extracted with alcohol, the alcohol evaporated, the residue dissolved in water, and treated with an equal bulk of cold colorless nitric acid and cooled to a low temperature when urea nitrate is deposited in rhombic six sided plates.

Aside from the determination of the urinary character of an unknown liquid the only test of importance to the physician is the method of estimation of the quantity of urea.

A rough approximation may sometimes be of service. If the urine without concentration yields crystals of urea nitrate upon being mixed with an equal volume of colorless nitric acid the amount of urea is above the average; if after concentration to half its bulk it fails to yield these crystals, the amount of urea is less than the average.

The value of accurate determinations of the amount of urea in urine is very much reduced by the fact that before the physician can draw any conclusion as to the presence or absence of disease from the amount of urea, he must know the amount of nitrogen ingested with the food during the twenry-fonr hours The physician should always bear in mind, that (1) the quantity of urine for twenty-four hours must be known; (2) the urine must not have been allowed to undergo the alkaline fermentation; (3) the sample examined must be a sample of the mixed urine for twenty-four hours. A simple apparatus for the estimation of urea invented by Dr. Chas. Doremus will answer the purpose of the practitioner.

The apparatus as shown in the cut consists of a pipette and a graduated tube and bulb. The reagents necessary are (a) a solution of sodium hydroxid 100 gm. to 250 c.c. of the solution which should be kept in a bottle with a paraffined or rubber stopper; (b) bromine. Sodium hypobromite is prepared by adding one c. c. of bromine to 10 c. c. of sodium hydroxid. In practice we pour the soda solution into the ureometer until the long arm when inverted is full to the mark and then with the pipette introduce 1 c. c. of bromine. The bromine is dissolved in the alkali by gentle agitation and the solution diluted with water, until it fills the long arm and bend.

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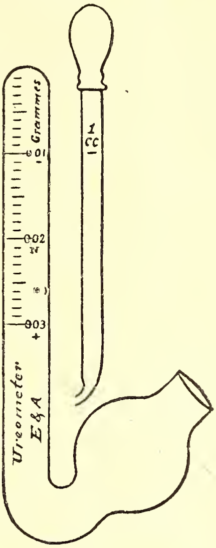
*A piece of filter paper on which the washed organisms have been allowed to dry may be colored with turmeric and becomes a very sensitive reagent for urea in neutral fluids when dipped in the fluids and exposed in a warm place it turns brown from the development of ammonia. This will detect one part of urea in 10,000 of fluid.



DOREMUS'S UREOMETER

Care must be taken that all air is excluded from the long arm. Draw the urine into the pipette to the graduation (1 c.c.), pass the pipette into the ureometer as far as the bulb and compress the nipple slowly.

The urine will rise through the hypobromite and the nitrogen gas evolved will collect in the upper part of the tube, and after allowing the tube to stand for ten or fifteen minutes, can be measured by the marks on the tube. Each division indicates 0.001 gm. of urea in one c.c. of urine. The larger number divisions may be read as the percentage of urea. Thus if the gas reached to the figure 2 the amount of urea is 2%. Care must be taken to measure the urine exactly and to lose none in passing the pipette through the bulb, as well as to avoid the introduction of air by compressing the bulb too strongly at the last. Urea is decomposed by the sodium hypobromite into water, carbon dioxid and nitrogen.

The CO_2 is absorbed by the excess of alkali and for this reason if a weaker alkali be used, as liquor sodae, carbon dioxid not being dissolved will be added to the nitrogen and render the measurement of the latter inexact.

If the physician wishes to determine approximately the amount of nitrogen in the food, he may confine the patient to a measured quantity of milk for two or three days and can add to this a weighed amount of dry food of which the proportion of nitrogen is approximately known. Such food may consist of crackers, rice, oat or corn meal, weighed before cooking, etc.

The average amount of nitrogen in milk is 0.5%; in rice 1.2%; in maize 1.5%. The relation of nitrogen to urea is as 7 to 15.

Uric Acid. The importance of uric acid as a result of the metabolism of nitrogen in health and disease has long been recognized. Upon the relations of uric acid to urea and to the albuminous constituents of the food have been founded theories of disease which have exercised an immense influence over the thought and practice of physicians especially of the English speaking nations.

Unfortunately these theories were founded upon observations made with inaccurate chemical processes and have been formed by deductions from insufficient data so that of the theories formerly held in regard to the influence of uric acid in the causation of disease scarcely one can be said to rest upon a secure foundation.

Garrod taught that in gout the amount of uric acid in the urine and in the blood was greater than normal and that the alkalinity of the blood was diminished. More accurate and careful investigations have shown that uric acid is not increased in the urine nor in the blood and that the alkalinity of the blood is not less than normal in this disease. In a similar way the often asserted causal relations of uric acid to rheumatism, migraine, skin diseases, and to that indefinite condition known as lithemia are placed in doubt.

It may be well to speak of three misconceptions likely to confuse the mind of the medical man upon this subject. 1st it is very commonly the case that physicians decide upon lithemia because they see a deposit of urates or find crystals of uric acid adhering to the sides of the vessel. This condition is one easily produced by cooling highly acid urine and indicates nothing as to the amount of uric acid contained in the urine.

2nd. It is very commonly supposed that an excess of uric acid indicates an excessive ingestion of proteid food. In regard to this it must be said, that while some authors still hold to this view the result of recent experimental work seems to establish the fact that uric acid does not arise from the ordinary proteids of the food, but from the metabolism of nuclein or nucleo-albumin.

3rd. It has been held that there is a definite normal ratio between the amount of uric acid and the amount of urea excreted in the same time. It must be said in regard to this, that no such ratio exists that is applicable to all persons, and while the ratio in the same individual is fairly constant in a state of health it is impossible to make use of this fact in practice, because we have no opportunity to determine the normal ratio, when the patient presents himself for examination. Moreover no certain conclusion can be drawn from a variation of the amount of uric acid in disease, unless we know whether the cause of this variation arises from changes inside the body e. g. leucocytosis or from a variation in the amount or character of the food. The correct conclusions in regard to the clinical meaning of variations in the amount of uric acid are arrived at with as much or greater difficulty than in the case of urea.

In conclusion we may say that the appearance of a sediment of uric acid or urates means nothing more than unduly acid, cold, or concentrated urine; that there is no normal ratio between the amount of urea and of uric acid excreted, although it is usually in the neighborhood of forty to one; that uric acid may arise from the ingestion of food containing nuclein, or consisting largely of cells, or from the destruction of cells or tissues containing nuclein inside the body, but no practical conclusion can be drawn from its variations in amount, except when the most strict precautions are taken. (See Hopkins article in Schafer's text-book of Physiology, vol. I., P. 593.

Both urates and uric acid respond to the murexid test which is performed as follows. The sediment is evaporated on the water bath with a few drops of nitric acid, when a redish residue remains. This when cold is touched with a drop of ammonia water and a magnificent purple color is produced, changing to a violet on the addition of solution of potasium hydroxide.

The xanthin bases or alloxuric bodies are derivatives of xanthin and probably have the same sources as uric acid. In addition some of them are probably the result of the metabolism of caffein and theobromin, the alkaloids of tea, coffee and chocolate. It has been claimed that paraxanthin is the cause of migraine and probably of epilepsy. (Ratchford, *Med. News* LXIV p. 561, LXV p. 482).

The following is Bartley's method of estimating uric acid and the xanthin bodies: To 100 c.c. of urine add 5 c.c. of magnesia mixture (magnesium chlorid 11 parts, ammonium chlorid 28 parts, ammonia water 70 parts, water 130 parts), and 10 c.c. of 10% ammonia or enough to give a decided excess. The urine is now heated on the water bath and titrated with $\frac{1}{50}$ normal solution of silver nitrate until a drop removed and filtered through a very small filter, gives a dark color when brought in contact with a drop of weak solution of ammonium or sodium sulphid. Bartley recommends for filtering the mixture to wrap a piece of absorbent cotton around the end of a small bulb pipette; the liquid is sucked into this, the cotton removed, and a drop placed on a porcelain plate for testing. One c.c. should be deducted from the amount of silver solution used, for the amount necessary to produce the reaction with ammonium sulphide. Each c.c. of siver solution used corresponds to 0.00386 gm. of uric acid. If the determination be made in the cold, the amount of the silver solution required will be larger, because the xanthin bases will also be precipitated by the silver nitrate, and if the number of c.c. used with the hot solution be subtracted from the number required in the cold, the excess will indicate the amount of xanthin bases present in the urine. One c. c. of silver solution corresponds to 0.00158 gm. of xanthin.

(To be continued.)

THE PHYSICIAN AND THE UNITED STATES PHARMACOPOEIA.

By J. A. Patton, B. S. M. D. Assistant Prof. of Materia Medica, Therapeutics and Chemistry, Rush Medical College, Member American Medical Association, etc. etc.

The Pharmacopœial Convention will meet May 2nd., 1900, in Washington D. C., for the purpose of completing the arrangements for the 8th decennial revision of the Pharmacopœia and the proximity of that meeting makes the subject one that should be of special interest to every practitioner of medicine and surgery.

A Pharmacopœia is a standard code containing a selection of medicinal substances, preparations and formulas. The United States Pharmacopœia is a book compiled by a National Committee on Revision and published by authority establishing standards for the identification, purity, strength, and quality, and giving directions for the purification, valuation, preparation, compounding, and preservation of drugs, chemicals, and medicinal substances. This National Committee on Revision of 1890 consisted of 25 members, 12 physicians and 13 pharmacists, they being appointed by the National Convention which consisted of three delegates from each incorporated medical and pharmaceutical college and society, that desired to send representatives, and three from the United States Army, Navy and Marine-Hospital service each.

The convention to meet in May, 1900, may contain three delegates from each of the several bodies represented in 1880 and 1890 and such other State Medical and Pharmaceutical Associations, and incorporated Colleges of Medicine and Pharmacy, as shall have been in continuous operation for at least five years immediately preceding. The several bodies represented are requested to submit the Pharmacopœia to a careful revision and to transmit the results of their labors through their delegates to the convention.

The United States Pharmacopœia is not legalized by the National Government but is recognized as authority by the courts, is the standard employed in the purchase of medical supplies for the army and navy of the United States, and some states have adopted it as the legal standard for the enforcement of their pharmacy laws.

The first authoritative list was published when pharmacy had not yet reached the state of a fully developed profession in this country, having been compiled by a convention of physicians which met in Washington D. C., in 1820, both Latin and English being used in the text·

The 1830 convention, because of some misunderstanding, became a divided body, two lists were published, and the Washington convention arranged for the meeting in 1840. Delegates from the United States army and navy and those members of Congress who were practictioners of medicine were present in the Washington convention.

The 1840 convention consisted of 20 delegates, all were medical men, and their revision committee consisted of seven members.

The convention of 1850 consisted of 30 delegates, was the first in which the pharmacists were represented, two pharmacy schools sending delegates, and also the first in which Rush Medical College had delegates.

The pharmacy element in the convention has grown with each succeeding one since 1850 and has risen from the position of a co-laborer to that of a leader as the last two revision committees have contained a majority of pharmacists and they have been called upon to do the most of the work.

The 1860 convention had 30 delegates; 1870 had 60 delegates; 1880 had 109 delegates; and the 1890 had 281 delegates of whom about 180 were present.

The convention thus has always met in Washington D. C., and the revision committee is appointed to have in charge the collection and arranging of all data presented, to determine what shall be done with them, then to publish the materials authorized by their revision, and to remain in control of the affairs until the next decennial convention meets.

There were an equal number of medical and pharmaceutical delegates to the last convention but the pharmacists were more regular in their attendance and the Pharmacopœia is today known to very few physicians, being used by a much less number.

The question arises what can be done to revive the interest of the medical man in the Pharmacopœia or shall he surrender it more completely into the hands of the pharmacist.

Is there a practictioner of modern medicine or surgery who, if he had the time for previous preparation, would enter upon an operation or take charge of a patient without having first fully studied the details of the anatomy, pathology, etc., bearing on the individual case? Yet how many of them will prescribe, both for internal and external use, medicinal preparations, often unofficial ones, of whose physical and chemical properties they are ignorant and many times they know little or nothing definite regarding their physiological, therefore therapeutical properties. Is it any wonder that medication is falling into disrepute with many physicians when they show so little interest in the official list?

The Pharmacopœia should contain those preparations which the physician has found servicable and reliable in hs practice, to the pharmacist being delegated the working out of the processes for their preparation and testing so that their action would be uniform for equal physiological resistances. Definite chemicals should always have the same action under like conditions; the same can be said of preparations containing definite active principles such as alkaloids; glucosides, antitoxins, etc.

Since the Pharmacopoeia is prepared by and for both professions, is authoritative in that it is disinterested, prescribes definite preparations, called official, with methods for their compounding and testing, and outside of whose list the preparations are called unofficial or unethical, the use of the latter being looked upon with disfavor by most members of the two professions, it should be in the hands of every physician and pharmacist and should be their chief reliance when they desire information regarding any medicinal compound of value. The recognized and proven methods of both professions with their results must be considered if the book is to be very useful to the majority of their followers. The medical colleges and societies that have appointed delegates to the convention should see to it that they attend the meeting and that they go well provided with materials to reinforce the standing of the present worthy preparations and to make good the claims for recognition of the unofficial preparations that are considered worthy.

Any suggestions regarding methods and tests or any additional features that would be valuable to the physician should also be presented with proofs for their recognition.

The medical delegates should decide in the main what old preparations should be retained and what new ones should be added; those used and proven by practice should be the ones authorized.

The physician can also demand with justice to himself, to the pharmacist and even more to the patient that all preparations be made as accurately as possible, hence chemicals should be of definite chemical value; organic preparations, containing active principles capable of extraction and determination, should be made to contain a definite quantity of the active principle, and not so much of the crude drug whose samples often vary in medicinal value; definite synthetics of proven value, though many of them are copyrighted, should be recognized in some manner so their manufacture would have to be within certain known lines; useful serums and organic extracts should be definitely outlined with methods of their preparation and testing stated. Many other things that would enhance the value of Pharmacopœia to the physician could be mentioned.

The average physician when asked about the Pharmacopœia will answer that he does not know very much about it and can not make any suggestions regarding its revision. Should not some active steps be taken by the profession to correct this ignorance regarding the authoritative list of all the official or we might say ethical medicinal preparations that we have to use in the treatment of the sick?

The medical profession through its lack of interest and ignorance of its power in relation to the scope of the Pharmacopœia is to blame for the apparent lack of usefulness of the present one.

The teachers of materia medica and therapeutics can greatly aid in this rehabilitation of the Pharmacœia in the minds of the medical profession by their methods of instruction, but it must be remodeled in certain directions before they can insist upon its use as a text book.

The Pharmacopœia coming into competition with the various texts on materia medica and therapeutics, to be more generally useful to the physician, must embody many of their features.

The question of two Pharmacopœias, one for the medical practictioner, the other for the pharmacist, has been brought forward and unless many additions are made to the present one along the lines demanded by the physician he will care even less for it than now. The time is ripe either to make the Pharmacopœia more of a physician's test or to surrender the present volume to the pharmacist and call a convention of physicians to prepare an official list with necessary comments for their use.

The dispensatories are too large and unwieldy for every day service, while for consultation the physician requires a text that is easily handled and that has its materials in as concentrated form as possible.

Advances and changes in the practice of medicine and surgery have followed very rapidly the past decade and the appearance of new medical preparations has kept pace, hence the physician feels that supplementary lists must be published, probably annually.

The most important problem that will come before this convention is how to harmonize the desires of the physician and pharmacist thereby preventing their separation into two bodies, each intent upon a publication that will suit their individual needs, thus giving rise to a possible conflict between the prescriber and the compounder of the prescription.

Each of the professors will have to make concessions to the other for this revision and if this can be done a rupture will be postponed for another decade at least.

Thus we can see the importance to the medical profession in having their delegates fully prepared to meet and discuss the questions that will arise.

The Corpuscle

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The National Convention for the 8th Decennial Revision of the Pharmacopœa of the United States will meet in Washington, D. C., May 2nd, 1900.

Each incorporated medical college is entitled to three delegates and the executive faculty of Rush has appointed Professors W. S. Haines, D. R. Brower and J. A. Patton as the college representatives.

The members of the college faculty are requested to submit the Pharmacopœa to a careful revision and to make any suggestions they may see fit to their committee who will submit them to the convention.

A letter was sent out by Prof. Haines, the chairman of the college committee, to the members of the faculty requesting them to forward to him any changes or suggestions they thought worth taking to the convention.

The committee desires to urge upon each and all of the instructors in the Rush faculty the necessity of the college being represented in the changes to be suggested to the convention and that the committee feels the need of the co-operation in this work of all men connected with the college. Each reader of the CORPUSCLE is also urged to send to the committee any suggestions he thinks important.

The importance to the physician of this coming revision cannot be overestimated at present, therefore let each one lend his aid to the college committee in this work, so that our college may be with the vanguard in this as she is in other medical and surgical questions.

It may be of interest to know that Rush was represented in the National Convention for Revision of the Pharmacopœa a half century ago, delegates being present at the convention of 1850.

CORNELIUS JAMES CORBOY.

The members of the Junior class were shocked to learn of the death of one of their most esteemed members, Cornelius James Corboy, on Saturday March 3rd, after one week's illness. Mr. Corboy had been suffering from appendicitis for about three days when on Monday Feb. 26, he was removed to the Presbyterian Hospital where he was operated on by Prof. Senn. For a time it seemed that he was on the road to recovery, but on Friday following the operation he became worse and sank very rapidly.

Mr. Corboy was born in Highland County, Ohio, April 3rd, 1873. He attended country school and worked upon his father's farm until the age of 16 when he entered the Normal school at Valpariso, Ind., where he afterward graduated in the Scientific and Pharmacy departments. He taught school for three years in Porter County, Ind. He entered the Rush in '98. He was a hard working, ambitious student. He was held in the highest esteem by his classmates and all who knew him. He was the youngest of a family of eight children, three brothers and four sisters, all of whom are still living.

The following resolutions were adopted by the Junior Class:

WHEREAS, God in His infinite wisdom, has removed Cornelius James Corboy from our midst and:

WHEREAS, During our happy acquaintance with the deceased, we have found in him a man of integrity, fidelity and perseverance, and one whose zeal, untiring application and high attainment, foreshadowed a great and influential future, therefore be it:

Resolved, That in the death of Cornelius James Corboy, the class of 1901 has lost a beloved friend and companion, our Alma Mater a faithful student, the profession a man of unusual promise, and suffernig mankind a sympathizing friend, a warrior against disease and death. And be it further:

Resolved, That in our common loss we extend our heartfelt sympathy to the bereaved family and relatives, and that a copy of these resolution be forwarded to the family of the deceased.

JOHN S. FOX,	WM. FREEMAN,
C. M. GLEASON,	R. B. LEACH,
A. C. GARVEY,	M. F. HEFFERMAN,

Committee.

SURGICAL CLINIC OF PROF. SENN.[1]

CASE I. *Sarcoma of the Nasopharyngeal Space.* Mr. W., aged forty-three. No veneral history. Nine months previously he was supposed to have caught a cold in the head. He suffered from difficult breathing due to stenosis of the right nostril. Four months ago he could only breath through the mouth as there was complete nasal occlusion. At this time a large swelling was noticed in the nasopharyngeal space. There was marked cysphagia. The recumbent position caused a sensation of cerebral congestion. Two months later portions of a tumor were removed through the nose, which greatly aggravated the existing conditions.

Operation. Preliminary ligation of right common carotid artery was performed because the disease was more extensive on that side. An incision four inches in length along the anterior border of the sternocleidomastoid muscle was made extending through the skin and superficial fascia; then blunt dissection until the sheath was reached, which was opened widely, freely exposing its contents; thus obviating the possibility of including important contiguous structures in the ligature. Afrer introducing dougle ligatures of catgut, traction was made on the artery by means of the ligatures as a secondary precaution in liberating the artery. Following this they were tied a quarter of an inch apart. The patient who had been fully anesthetized was now allowed to become semi-conscious. A guy rope of silk was next passed through the tip of the tongue. The soft palate was divided into two lateral halves by means of the broad blade of the Paquelin cautery, thus exposing the tumor mass which was removed piece-meal, largely with the use of blunt instruments. Profuse hemorrhage, which in spite of precautions, caused the patient to become asphyxiated several times, necessitated a delay in the operation until the patient revived. The tumor extended far back to the base of the skull. The soft palate was excised with scissors and the bed of the tumor was thoroughly cauterized. The nasal fossa and the nasopharyngeal spaces were lightly tamponed with iodoform gauze. One week later all the symptoms of difficult breathing, pain, and cerebral congestion had disappeared.

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[1] Held at Rush Medical College, Tuesday November 28, 1899. Reported by Emanuel J. Senn, M. D., Associate in Surgery, Rush Medical College.

Case II. *Recurrent Carcinoma of Tongue.* Mr. S., aged fifty. Prussian, married. The patient had been an inveterate smoker for years. Three years previously a fissure appeared on the upper surface of the tongue near its tip, which, five months ago was subjected to partial excision. Three months later there was a reappearance of the disease in the old scar with greatly enlarged lymphatics.

Operation. Partial anesthesia. A semilunar incision on right side of neck with convexity downward extending from the symphysis mentis to the mastoid process was made which was joined by an incision extending downward along the anterior border of the sternocleidomastoid muscle. An enlarged gland behind the sternocleidomastoid muscle and a chain of glands around the great vessels of the neck were removed. Later the mouth was opened according to Kocher's method and by careful dissection one-half of the flour of the mouth was removed *en masse*, with some enlarged submental glands. The tongue, by means of a silk loop passed through the tip was brought through the opening in the floor of the mouth and was amputated at its base. The cut lingual arteries were promptly caught and ligated. The two flaps at the base of the tongue were sutured with catgut, the large wound packed with gauze, and the skin-flap sutured in position; tubular drainage. The stump of the tongue was transfixed with a silk ligature, which was brought through the mouth and fastened to a support which was incorporated in a plaster-of-Paris cap, in order to guard against falling backward of the stump. One week later the patient was in excellent condition; in spite of the absence of the tongue, he was able to articulate, and could talk almost as well as before the operation.

Case III. *Pyonephrosis and Nephrolithiasis.* Mrs. S., twenty-seven years of age, married five years. Four years previously, at birth of first child, she was repeatedly catheterized. Pain in bladder and right renal region followed and she experienced a sensation as if an object were in the kidney attempting to escape. Two years ago nephrectomy was performed and a calculus is said to have been removed. The fistula closed seven weeks later but no improvement was noticed after the operation, and the patient had renal colic at repeated intervals.

Operation. Simon's incision, extending from the twelfth rib to the crest of the ilium was made. The capsule of the kidney was found adherent by reason of the previous operation. The kidney was hard and did not give any sense of fluctuation. Exploratory puncture revealed urine heavily loaded with pus. The needle of the syringe was left *in situ* to use as a guide. Pelvis of kidney was opened by means of Paquelin cautery. Digital exploration of the pelvis and calices. In the deep portion of the wound, the finger came in contact with a soft stone embedded in a calyx near the uretal orifice. This could not be removed entire on account of its location and its fragility. Its removal was with difficulty effected by means of a dull curette. The wound was irrigated and the renal wound enlarged by means of the cautery, nearly dividing the kidney in two halves. This secured requisite drainage and free exposure of all the calices. Drainage was made by means of three large rubber tubes.

CASE IV. *Traumatic Epiphyseolysis of the Femur.* Annie, aged thirteen. Eleven weeks before, the patient fell from a height, sustaining an injury in the neighborhood of the knee-joint. This had been previously diagnosed as a fracture or dislocation. There was shortening of the leg two and a half inches, with projection of lower fragment in an outward and backward direction. Paralysis of limb below the seat of injury was present and a radiograph showed a large callus in connection with lower fragment. An incision on the outer aspect of the limb in a line with the intermuscular septum revealed an epiphyseolysis of the lower extremity of the femur. Traction was of no avail in the mobilization of the lower fragment and was attended dy considerable hemorrhage. A disk of bone was removed by the saw from the upper fragment, after which the two fragments could be brought in coaptation. Suturing of wound, drainage, and large dressing, plaster of Paris, and fenestrated fixation splint completed the operation. Four hours after operation the temperature reached 104° F. This continued with some variation for two days when the dressing was changed and a considerable amount of bloody serum escaped, after which the temperature returned in a few hours to nearly normal.

CASE V. *Backward Dislocation of Elbow-joint.* Mr. W., young adult. The injury occurred five weeks previously. There was swelling of elbow-joint and the arm was in extension which could not be overcome. Marked prominence of olecranon process was present. The diagnosis of backward dislocation was confirmed by skiagraph. The patient was placed under the influence of ether and a bloodless reduction was made by careful forced flexion of the forearm, extension and counter extension. Traction was made by means of a bandage passed around the elbow with a clove hitch at the wrist. Through slight manipulation reduction was readily made, not, however, without causing a fracture of the tip of the olecranon.

CASE VI. *Tuberculosis of the Metatarsophalangeal Joint of the Little Toe.* Mrs. V., aged thirty-one. One sister died from phthisis. Six months previously the patient had tubercular peritonitis which subsided after one tapping and injection of iodoform glycerine emulsion. One year ago a fluctuating abscess appeared on the outer side of the little toe. This was tapped and injected with iodoform emulsion. As a fistulous opening appeared, which persisted to the present time, amputation of the entire toe and metatarsal bone except its proximal head was performed.

CASE VII. *Epithelioma of the Lower Lip.* Mr. S., aged fifty-one. The disease began as a papule on the lower lip three months previously, situated slightly to the middle line. Later an ulcer about the size of a dime developed. The submental glands were not enlarged. Operation was done without an anesthetic aV-shaped incision being made. Hemorrhage was controlled by digital compression. The apex of the incision was carried down to the lower border of the jaw in order to prevent both the possibility of leaving diseased lymphatics and to secure a more gradual convergence of the margins of the wound whereby a more perfect cosmetic result is secured. The incision in the mucous membrane of the mouth was sutured separately with catgut. The external wound was closed with a few silkworm tension sutures and with horsehair coaptation sutures. The external wound was sealed with collodion iodoform gauze and was then covered with cotton.—*Med News.*

COLLEGE NEWS.

The college was closed Feb. 14th on account of the death of Ex-President Holmes.

Professor Senn has been suffering from a severe cold. Professor Fenger conducted the Thursday surgical clinic last week.

C. E. Harris has been engaged to coach the Grinnell College foot ball team for next season.

Louis Pierson of the Freshman class has changed his address to 217½ Wood street, corner of Jackson Boulevard.

Walter Murray, former business manager of the CORPUSCLE, is now in the employ of the Chicago Telephone Company.

Dr. E. J. Senn has returned to the city. During his absence his classes have been held by Dr. Button.

"Dutch" Schoen of the Freshman class now romes at 217½ Wood St.

R. H. Porter, 1901, has been compelled to leave college on account of ill health.

G. R. Ernst has moved from 991 Harrison St. to 1005 West North Avenue.

Ass't. Prof. E. R. LeCount exhibited specimens illustrating the pathology of medical affections of the kidney, before the Chicago Medical Society, February 27th.

We learn that "according to the will of the late Dr. Edward L. Holmes, * * * an estate valued ot $75,000" goes to the relatives.

P. B. Brockway and F. W. Blatchford were in Detroit February 17, 18 and 19.

C. A. Henry and J. H. Metzger have moved from 308 Ashland boulevard to 5 Warren avenue.

C. F. Read spent Lincoln's birthday with his parents.

The condition of Harry B. Cragin who has recently been removed from his home at Evanston to the Presbyterian Hospital, is reported to be steadily improving. He has been suffering from nervous prostration.

George Miller of the Freshman class has been home nursing a bad cold.

Captain Farr of the football team would be glad to receive propositions from a first class barber. References required.

M. M. Baumgartner, H. A. Runkle and J. D. Overholzer have moved to 479 Washington Boulevard.

The classes in Opthomology and Otology were given examinations recently.

R. F. Rogers was called home for a few days because of his parents' illness.

Dr. F. C. Coolidge, Dean of the Freshman class has left for several weeks vacation in California.

The last section in Junior Pathology commenced labratory work February thirteenth. Unlucky Day!

C. F. Seifert spent several days in Milwaukee recently.

R. B. Fields and A. M. Henneberry now room at 5 Warren avenue.

Professor Brower led in the discussion of a paper on "Heredity in Crime" read before the Socio-Legal Forum recently.

R, R.Burt, 1902, has returned from a short visit in Ohio.

McNaughton, 1900, has recovered from a brief illness.

The semi-annual dance of the Sophomore class, held at Lake street and Francisco avenue on the evening of Feb. 26, was the most successful and enjoyable affair of its kind in the history of the class. Nearly one hundred were present. To Messrs. Brown and Graham is due the credit of arranging and directing the event.

C. W. Barnes, 1902, is in New York on a ten days' visit with relatives.

Wanted—(badly), a reliable and efficient mustache dye, of any other color than white—a preparation warranted fast. Apply to Walter Sheldon.

Professor Patton at the request of some brilliant Sophomore is now searching the Pharmacopoeia, endeavoring to ascertain the composition of "Duke's Mixture. He frankly confessed that the preparation was a new one to him, but he would look it up.

Professor Joseph Eastman of Indianapolis visited Professor Senn's clinic recently.

Professor Billings delivered an address on Medical Science before the Quadrangle club, recently.

On Washington's birthday the marriage of DeKrain Kalayzen and Agness E. Swenzy was celebrated.

C. E. Bachelle is suffering from facéal paralysis.

Prof. L. Hektoen has a short contribution on "Spontaneous Escape of Cerebrospinal Fluid from the Nose," in the *Indiana Med. Jour.* of February.

Ass't. Prof. A. C. Cotton reported "A Case of Heart Lesions" in a child of 11, brought before his clinic Aug. 2, 1898, in *Archives of Pediatrics* for December, 1899. Some of our readers will recall the case, and find the detailed report of interest. The micropsy report, illustrated, made by Dr. LeCount, accompanies the paper.

ALUMNI NOTES.

'99. W. C. Moss is located at LaFayette Ind. He was in the city a few days ago.

'98. Dr. E. A. Irwin now has his office at 417 S. 44th Ave. Telephone west 1255.

'98. Dr. A. F, Stevenson sailed for Europe March 1st.

'97. Dr. Longbrook of Galesburg, Ill., brought a patient to Prof. Hyde's clinic recently.

'97. Dr. H. G. W. Reinhardt who is now located at Fullerton and Clybourne avenues, was among the visitors at the college last week. He is one of the medical inspectors of the public school.

'97. Dr. J. J. Wellingham, of Los. Angeles, Cal., was in the city during February calling on old friends and attending clinics. He reports a large and steadily increasing practice.

'93. D. G. Hoxie, of Belmont, Ia., has gone to the eastern cities for extended post-graduate researches. Dr. Hoxie is accompanied by Mrs. Hoxie.

'85. Dr. R. A. Kittie, of Racine, Wis., was injured Feb. 17 by a street car. It is belived that his right eye will have to be removed on account of it having been cut in two by a piece of broken glass.

'79. Dr. A. Lagorio, director of the Chiacgo Pasteur Institute is sending out reports of the preventive inoculations against hydrophobia since July, 1890. 877 patients have received anti-hydraphobic treatment with the mortality rate of 0.46 per cent.

'49. Here is a letter concerning Rush's oldest graduate:

Dear Doctor:—The other day in conversation with a friend of mine, I learned of one of our oldest graduates, Dr. John H. Warren, of the class of 1849. He is living in retired affluence in Waukesha, Wis., hale, hearty and full of lively reminiscences of early experiences in Rush and in the northwestern States of those early times. I think that he is already known to some of the senior faculty, since a few years ago he gave to Dr. Holmes for the historical museum, a copy of the doctorate address given by Dr. Brainard on the occasion of the commencement exercises of the '49 class.

Leaving college he practiced in Lodi, Wis., from 1879 to 1854. At this time Wisconsin was practically unsettled save by a few pioneer whites and more Indians, so the pleasures and experiences of those early days can well be imagined. In 1854 a brother of his died in Albany, Wis., leaving a prosperous general business and flour mill. These interests were so large that he decided to remove to Albany. Here he was compelled to give up practicing his profession by the demands of these commercial enterprises. Gifted with a genial disposition he soon possessed the friendship of all who came in contact with him. As a consequence his friends insisted upon him entering politics, and in 1858 he was sent as senator to the State Legislature. In 1862 President Lincoln appointed him Collector of Revenue for the western district of Wisconsin. He was recommended by the Secretary of War, Mr. Stanton, and so great was the Secretary's confidence in his integrity and sterling qualities, that the doctor was permitted to qualify for the office without any other recognition than his own word as a man of honor. After the war he organized the Western Stage Company, with whom the government contracted to carry the mail over some four to seven thousand miles of mail-routes, throughout the western States and Territories. These routes covered territory, which at that time was without railroads and very sparsely settled with white people, but peopled with many band of roaming Indians. As his territory extended from Wisconsin to Wyoming, it naturally brought him in contact with many of the Indians individually, belonging to the various tribes. He soon familiarized himself with their language and mannerisms. This enabled him to enter into business relations wlth them, and so intimate became his knowledge of them, that the government, when negotiating with the Indians, often had occasion to utilize his friendly influence as intermediary and confidential agent. One of his classmates was our well-known genial alumnus, Dr. Murphy, of St. Paul, now dead, with whom we all became acquainted while serving as president of the Alumni Society of the year 1891.

LITERATURE.

OPERATIVE SURGERY. By Joseph D. Bryant, M. D., Professor of the Principles and Practice of Surgery, Operative and Clinical Surgery, University and Bellevue Hospital Medical College, etc. 3rd Enlarged and Revised Edition. New York: D. Appleton & Co., 1899. Vol. 1, 587 pp., 749 illustrations, of which 50 are colored.

Bryant's Surgery, as presented in the previous editions, early achieved a merited popularity alike with practitioner, student and teacher. The new edition, practically a new work, combines the individual excellences of former editions with an exhaustiveness that will give it front rank among American works on Surgery.

The original classification and arrangement has been preserved, but the volume of the book has been more than doubled.

Over one hundred well-written pages are devoted to those general considerations—anæsthetics, dissection, antisepsis and asepsis, preparation of materials, hæmotasis, wound treatment, etc., which are the essence of surgery, yet which are in so many text-books allotted a few pages of general statements that mean much or little to a reader depending altogether upon his knowledge of the subject.

The use of the works "aseptic" and "antiseptic" on page 80 is not in accordance with general usage and will tend to add confusion where already much exists.

The author's recommendation of rubber tube drainage for recent wounds, while not at all at variance with the practice and teaching of many good surgeons, will probably require revision in subsequent editions.

Judged by Vol. I:, the new Bryant Surgery is to be regarded as one of the most valuable additions to Surgical literature that has ever appeared.

"STRINGTOWN ON THE PIKE."—Messrs. Dood, Mead & Co., of New York, announce as their serial story for the *Bookman* of 1800, beginning in March, "Stringtown on the Pike," by Mr. John Uri Lloyd, author of "Etidorhpa." While the story has all the fascination of fiction, it is mainly an o'er true tale of American life in the Commonwealth of Kentucky. The characters are every-day people, and include the clergyman, doctor, judge and colonel. As a portrayer of original character the author is not surpassed. His place and position are unique. If asked in what direction Mr. Lloyd excels as a writer a correct reply would be difficult to give. His first indelible tracings are found in clear, crystallizable science, where, as a matter of course, there is to be found neither sentiment nor emotion. His equations, problems and formulæ were always rigidly correct, true and self-proving. When delving in the occult he was equally a master. Finally, his genius is bursting forth in a fiction that is full of thrilling passion, pathos, wit and humor. "Stringtown on the Pike" is a homely name of a homely story. The very homeliness and truth to life is the attraction and feature that will create a demand for it among all readers of good literature. The writer scarcely scans the marks of merit due in a consideration of good things to be soon placed within reach of the public.

MISCELLANY.

The work of certain Japanese in this country, in medical science, has been so marked, that medical practitioners generally should find much food for thought on "The Intellectual Future of Japan," a paper in the *Living Age* for March 3.

J. V. White, '01, is looking after the interests of the Apollo Club. Students should bear in mind the coming concert, as advertised in these pages last month, and get your tickets of White.

One of the most attractive programs offered by the Chicago Orchestra this season is that for the afternoon concert of March 30 and the evening of the 31st, in the Auditorium. Mrs. Katharine Fisk, so widely and favorably known to music lovers, is to be the soloist. She will sing Gounod's beautiful aria, O ma Lyre Immortelle, from "Sapho"; also an aria from Saint-Saens' "Samson and Delilah"—Fair Spring is Returning. Other numbers will be Sœdermann's overture—The Maid of Orleans; The Dvorak Symphony No. 5 (E Minor); Massenet's Suite—Les Erinnyes—with violincello obligato by Bruno Steindel. The violin obligato to Handel's Largo will be played by L. Kramer, and Tschaikowsky's Capriccio Italien, Opus 45, closes the program.

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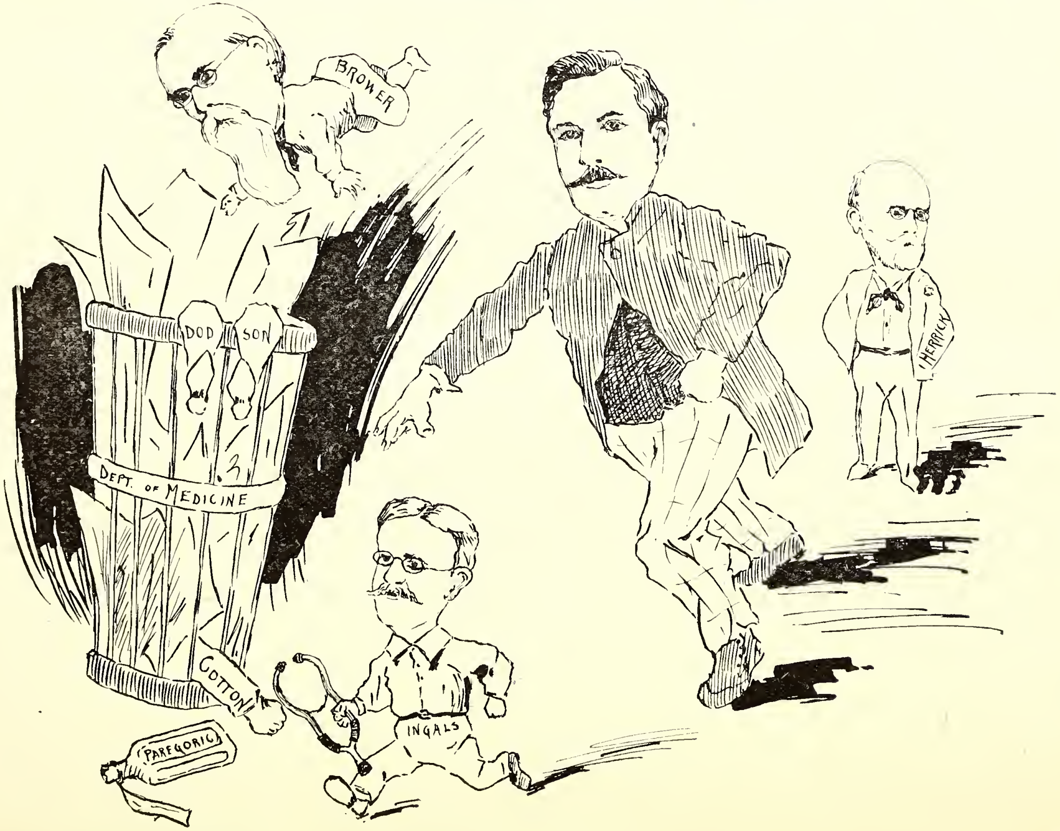

The Corpuscle.

Rush Medical College, Chicago, Ill.

In Affiliation with the University of Chicago.

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NOTES ON URINALYSIS.

By J. H. Salisbury, A. M., M. D.,
and
O. T. Roberg, M. D.

Inorganic Salts. The determination of the quantity of inorganic salts, as the chlorides, phosphates and sulphates is not of very much practical utility, varying as they do almost entirely, with the quantities of these compounds ingested. This is especialty true of the chlorides and phosphates; a very small percentage of the phosphates, however, results from the metabolism of phosphorized bodies, such as lecithin, nuclein, etc. The sulphates result from the metabolism of proteids. The sulphates ingested in food or in the form of medicines are excreted mostly in the fæces.

Chlorides. The quantity of chlorides excreted in twenty-four hours varies from 8 to 15 grammes. The chlorides exist chiefly in the form of sodium chloride. The chlorides are decreased in most febrile conditions, in nephritis and in conditions associated with the formation of large transudates or exudates as in pleurisy, pneumonia, and ascites, and when much water is eliminated by other emunctories than the kidneys as in profuse perspiration, diarrhœa, etc.

The return to the normal, of the chlorides, in the conditions in which they are diminished, is often an indication of improvement. This is especially true of pneumonia in which the chlorides may disappear entirely. In pneumonia the urine should be tested daily for chlorides, as their reappearance may be the first sign of improvement. After the crisis the chlorides are somewhat increased in quantity.

To test for chlorides. To several c. c. of urine add a few drops of nitric acid and drop by drop, a solution of silver nitrate. If the chlorides are present in usual quantity a heavy, curdy, white precipitate is thrown down which soon sinks to the bottom of the test tube forming a layer of some depth. If a small quantity is present, the precipitate does not form in curds, but produces a precipitate of milky appearance; if only a trace is present, a mere turbidity results, and if absent the urine remains clear. The object of acidifying the urine with nitric acid before adding the silver nitrate solution, is to prevent the precipitation of the phosphate of silver which is soluble in nitric acid, hence the necessity of adding the acid to strongly acid reaction.

Phosphates. The phosphates of the urine may be considered of two classes, the alkaline and the earthy. The former, the sodium and potassium phosphates which form the greater proportion are soluble in water; the latter, the calcium and magnesium phosphates, present in smaller quantities, are insoluble in water or fluids of alkaline or neutral reaction. These earthy phosphates are held in solution in acid urine; but are precipitated in urine of alkaline reaction. The phosphates exist as the di-hydrogen phosphates, NaH_2PO_4, $Ca(H_2PO_4)_2$ and the mono-hydrogen phosphates Na_2HPO_4, $CaHPO_4$. Alkaline urine may contain the normal phosphates, Na_3PO_4, $Ca_3(PO_4)_2$, etc. These salts determine the reaction of the urine and not any free acid such as uric acid. The di-hydrogen phosphates are of acid reaction, the mono-hydrogen phosphates neutral to phenol-phthalein and alkaline to litmus, the normal phosphates, alkaline.

If urine not strongly acid in reaction is boiled the earthy phosphates may be precipitated; the action taking place is explained by the following equation: $4CaHPO_4 = Ca(H_2PO_4)_2 + Ca_3(PO_4)_2$, the tri-calcium phosphate being precipitated

If urine is made alkaline by the addition of an alkali the earthy phosphates are precipitated. Obviously, the precipitation of the phosphates in urine when voided alkaline in reaction, does not indicate an excessive excretion of the same. The occurrence and significance of the the ammonio-magnesium phosphate has been considered above, *q. v.* From 2 to 4 grammes of phosphates are excreted in twenty-four hours. The phosphates are decreased in most febrile conditions and in nephritis. They are said to be increased in osteomalacia, in rickets and in conditions of nervous exhaustion.

To precipitate the phosphates, alkalinize about 10 c. c. of urine with liquor potassæ and heat; this precipitates the earthy phosphates. If after the precipitate has settled there is a layer of some depth the earthy phosphates are considered not decreased in quantity. After the earthy phosphates are removed by filtration, the alkali phosphates are precipitated by a mixture of solutions of $MgCl_2$, NH_4Cl and NH_4OH, (the magnesia mixture). A heavy precipitate is thrown down, about three times as heavy as that produced by the earthy phosphates. It is impossible, except by complicated accurate processes, to estimate, even approximately, the quantities of these salts.

Sulphates are excreted in combination with sodium and potassium. From 1 to 3 grammes are eliminated daily. An increase in the sulphates takes place in conditions associated with an increased metabolism, in fevers etc. As the chief source of sulphates is the same as that of urea, the quantities of these excreted maintain a nearly constant proportion, about 1 to 8. To precipitate the normal sulphates render the urine strongly acid with acetic acid, add a solution of $BaCl_2$ and boil. Normally a precipitate of moderate turbidity is produced.

Of more importance is the detection of *ethereal sulphates.* These compounds may be considered as sulphuric acid in which the radicle OH has been replaced, by organic radicles such as phenoxyl, indoxyl, skatoxyl, etc. Phenol, indol, etc., are produced in the putrefaction of proteids and are eliminated in the urine in combination with sulphuric acid, forming the ethereal sulphates. They occur normally in urine in only small traces. They are increased in intestinal putrefaction and occasionally in putrefactive processes in other parts of the body.

Ethereal sulphates are separated from the normal sulphates by the following process: Acidify the urine with acetic acid, add an excess of solution of barium chloride and boil. This precipitates the normal sulphates which are removed from the urine by filtration. To the filtrate is added hydrochloric acid and the mixture is boiled to decompose the ethereal sulphates into normal sulphates which are precipitated by the excess of barium chloride. The precipitate obtained represents the sulphuric acid existing originally as ethereal sulphuric acid. Normally the proportion of normal sulphates to ethereal sulphates is about 10 to 1.

Fortunately we possess a simple test for one of the ethereal sulphates occurring most commonly, indican (potassium indoxyl sulphate). To 10 c. c. of the urine add an equal bulk of fuming hydrochloric acid and a few drops of solution of ferric chloride by which the indican is oxidized to indigo. A few c. c. of chloroform are now added, and the contents of the tube carefully and slowly poured back and forth from one test tube to another. By this shaking out process the indigo is dissolved in the chloroform to which it imparts an indigo, blue color. As the indican is not immediately oxidized it is desirable to wait a few minutes before the chloroform is added to the mixture. Most samples of urine contain enough indican to give a faint reaction with this test.

Of the various proteids occurring in urine the most important is serum albumin. It has been claimed by some investigators that by the use of certain delicate tests albumin can be found in nearly all samples of urine. The accuracy of these tests is however, open to some question. If we take into account the cases of albuminuria revealed by undoubtedly accurate tests, we may say that albumin in the urine is always pathological. When the system is in a normal condition and the kidney is normal the urine does not contain albumin. That the urine may contain albumin while the kidney is normal, cannot be denied although in such cases there may be an undiscovered lesion of the kidney or one which may afterward be repaired so as to leave no trace. That albuminuria may be produced by obstruction of the venous circulation in the kidney is well known. How far in such cases a blood change precedes the alteration in structure of the kidney cannot be determined, but it is safe to say that in a majority of cases albuminuria represents a toxæmia which precedes and causes the kidney lesion.

Whether the albumin excreted is itself toxic is an interesting question. We know that the kidney has the power of discriminating between egg and serum albumin excreting the egg albumin when injected hypodermatically, while serum albumin under similar circumstances is retained. It is possible that the albumin excreted in disease may be so altered as to be injurious to the organism and in its excretion may carry with it the toxin which is the cause of the disturbance.

We may divide albumnuria into accidental and essential. In accidental albuminuria the albumin is mingled with the urine after its excretion by an admixture of pus, blood or other albuminous fluid, coming from the pelvis of the kidney, the ureter, bladder, or other organ or directly from the blood itself in case of hemorrhage, abscess, etc.

Essential albuminuria may be divided into two classes (a) those in which it accompanies a structural lesion of the kidney and (b) those in which structural changes are wanting. If we accept casts as evidence for the change in structure of the kidney we may well doubt the occurrence of albuminuria without change in the structure of the kidney, for, if casts are searched for by the method of Prof. Haines and Dr. Skinner we shall probably find them in every case.

Albuminurias without structural change may be due to the introduction of poisons from without the body as in the case of lead poisoning, to the acute infectious diseases, as typhoid fever, to the formation of poisons in the intestinal tract, as in the so called digestive albuminuria, to alterations in the metabolic processes as in cases due to fatigue or of nervous origin, or finally to local changes in the circulation in the kidney. Albuminuria with structural change in the kidney constitutes nephritis and a full consideration of its etiology is precluded by the limits of this paper.

The students in urinalysis at Rush are regularly requested to test their own urine for albumin. Many cases of transient albuminuria are thus discovered.

In these cases various etiologic factors are noticed, the more prominent being muscular or nervous fatigue, and digestive disturbances. In most of these cases the symptoms disappear and no further trouble is experienced.

The significance of albuminuria ought not however to be minimized, for it is impossible to say that the injury to the kidney experienced in such cases may not lead in the end in after years to such a degree of degeneration and loss of function as to give rise to the symptoms of interstitial nephritis.

Many tests have been devised for the detection of albumin in the urine, but the result of long experience indicates that it is much more important to be thoroughly acquainted with the technique, limitations, and fallacies of one test, than to know superficially a large number of tests whose fallacies are imperfectly understood. Students are often surprised that significance should be attached to minute amounts of albumin that can scarcely be seen, but it must be remembered that it is in cases where small amounts or traces of albumin are present that its discovery throws the greatest light on the nature of the malady. In a case of scarlet fever with diminished urine and marked dropsy, the nurse can make the diagnosis, and the examination of the urine for albumin scarcely adds to our knowledge of the case; but in a case presenting none of these gross symptoms the discovery of a trace of albumin sounds a note of warning that if heeded may avert more serious consequences.

Two tests have stood the test of laboratory experience and will be minutely described. The others which are sometimes recommended have been tested in the laboratory and have been found not to give good results in the hands of students and are not worthy the confidence of the practitioner. These will be passed with a slight mention.

Before testing for albumin the urine should be made perfectly clear. This point cannot be too much insisted upon. Ordinarily urine can be clarified by repeated filtration; if this fails a few drops of magnesium sulphate solution be added and then enough liquor potassæ to make the urine alkaline. The resulting precipitate of phosphates will carry down with it bacteria, epithelium and so forth, that render the urine turbid, the filtrate will be perfectly clear. This filtrate must be acidified with acetic acid before applying the heat test but this precaution is not necessary in applying the nitric acid test.

Heat test. A test tube is filled to the depth of several inches with the clear urine which if not acid should be acidified slightly with acetic acid. This may produce a precipitate of mucin which should be noted. The upper part of the urine is then heated to boiling while the lower part remains cool. This may be conveniently accomplished by holding the test tube by grasping it with the fingers at the bottom, having boiled the upper part the test tube is held to the light when a cloudy layer of coagulated albumin is seen in the upper part contrasting more or less strongly with the clear urine below. To determine that this cloud is not due to phosphates or mucin a drop or two of nitric acid is allowed to mingle with the urine when phosphates or mucin will dissolve while albumin will become more evident if anything.

Too much acetic acid should not be used in making the urine, acid, as an excess sometimes holds albumin in solution. Nitric acid should never be added before boiling nor should the urine be boiled again after the addition of the nitric acid as acid albumin may be formed which will not coagulate by heating. Upon boiling urine which is only slightly acid the phosphates are frequently precipitated, because of the escape of carbon dioxid which held them in solution. This precipitation is usually prevented by the addition of acetic acid before boiling. Simon says (Clinical Diagnosis p. 400) that the test is improved in deliacy by the addition to the urine along with the acetic acid, of one sixth its bulk of a saturated solution of sodium chlorid or sodium or magnesium sulphate.

The occasional precipitation of oleoresins can be detected by their solubility in alcohol.

The heat test is entirely reliable but somewhat less delicate than the nitric acid test.

The Nitric Acid test. This test is the one most commonly used and is probably the most delicate and reliable test for albumin that we possess. In the Rush laboratory it is performed as follows: Four to five c. c. of the clear urine are placed in a test tube the sides of the test tube being wet with the urine. The stopper of the nitric acid bottle is wet with the acid and drawn across the lip of the bottle that the acid may flow easily. The test tube is inclined at an angle of 45° and the acid allowed to trickle down the sides of the test tube flowing under the urine until a clear layer of acid has collected at the bottom of the tube. The tube is held in the slanting position for a moment and then slowly raised to a vertical position. The urine is now examined against a dark background (as the coat sleeve). If albumin is present a cloudy ring will be seen at the junction of the acid with the urine. This cloudy layer occasionally spreads upward into the urine above but its lower border should be at the junction of the urine and acid. Usually there will appear higher up in the tube a cloudy ring of mucin which is coagulated by dilute nitric acid, is dissolved by strong acid; hence as the nitric acid diffuses upward into the urine the mucin ring rises and finally disappears. If a cloud appears between the acid and urine, the urine should be gently warmed when if the cloud consists of urates it will be dissolved and disappear. Care should be taken in heating the urine not to disturb too much the layers of acid and urine lest a trace of albumin be lost either by being diffused through a greater volume of urine so that it cannot be seen, or by dissolving in the hot, strong nitric acid.

It is important that the physician should be familiar with the appearances that may be produced by adding nitric acid to urine. When cold nitric acid is used in the manner described a ring of color is produced varying from a narrow red line to a dense reddish brown color that may occasionally obscure the reaction for albumin. If iodides or bromides are present in the urine the iodine or bromine is set free and may also obscure the ring of albumin. Oleoresins are precipitated by nitric acid and present an appearance similar to that produced by albumin. This cloud is dissolved by the action of alcohol. The urates are sometimes precipitated by the action of nitric acid but the cloudiness will disappear on heating. In concentrated urines the nitrate of urea will crystallize out on standing, but the ring thus formed is distinctly crystalline, extends down into the strong nitric acid and disappears on warming. Biliary coloring matter is likely to be brought out if the acid contains nitrous acid, but this is not likely to deceive the analyst. The same may be said of indican. Occasionally we see gas evolved by the action of the nitric acid especially if the acid contains nitrous acid. This gas is usually due to the decomposition of urea by the nitrous acid or it may come from a similar action upon uric acid.

This gas rising through the urine may disturb the albumin ring so that doubt may be occasioned as to the presence of a trace. It is best, therefore, to use colorless nitric acid for this test. When urine containing albumin is heated with nitric acid it assumes a yellow color due to the formation of xantoproteic acid. This is known as the xantho-protetsic reaction and may pe used as indicating the presence of a proteid, presumably albumin, in the urine.

The nitric acid test is very delicate, detecting when carefully applied .004% which is probably the smallest amount that is of clinical importance.

The Potassium Ferrocyanide Test. This test is highly recommended by Purdy who gives the following directions for performing it. Into the bottom of a clean test tube is poured 15 to 30 drops of acetic acid, then about two or three times that amount of solution of potassium ferrocyanide (1 to 20) is added, and the two thoroughly mingled by shaking the tube. The urine is next added to the depth of two thirds of the test-tube. If albumin be present it will be precipitated throughout the whole volume of the urine in the form of a more or less milk-like, flocculent cloud according to the quantity of albumin present. The ferrocyanic test applied by the above method avoids the mucin reaction, and precipitates all modifications of albumin, acid and alkaline."

According to experiments made by Prof. Haines, however, it is found that mucin is still precipitated under these circumstances. Even acidifying with acetic acid and filtering will not completely remove the mucin. The test must therefore be considered liable to cause mistakes in searching for traces of albumin. For ordinary testing it possesses the advantage that it does not stain the fingers as does nitric acid.

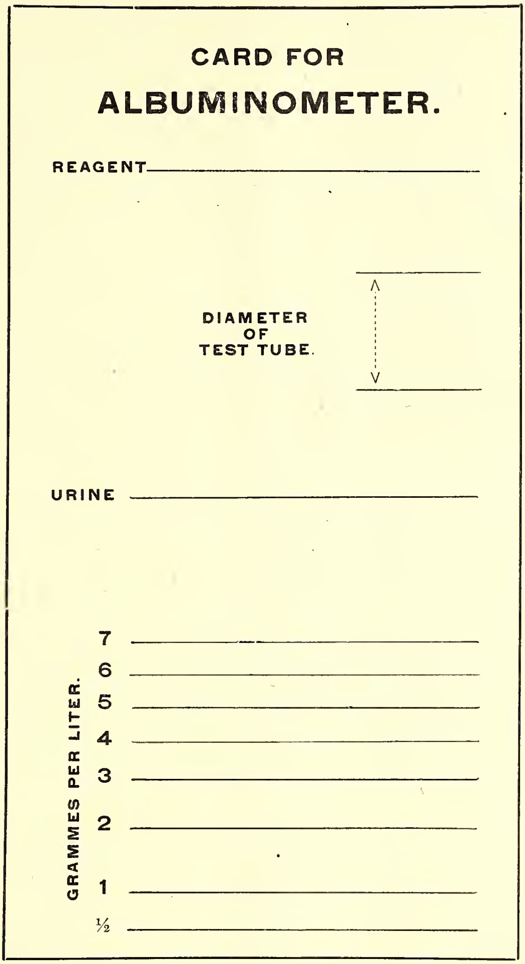
Tanret's test, the alcohol test, the picric acid test have not proved trustworthy in our experience and hence will be passed over without further description.

Quantitative estimation of albumin. For this purpose the most convenient clinical method is that of Esbach. Special tubes, termed albumimeters are employed which bear two marks, one U indicating the point to which the urine must be added, the other R, the point to which the reagent is added. The lower portion of the tube up to U bears a scale reading from one up to seven. The reagent is prepared according to the following formula. Picric acid 10 gm. Pure citric acid 20 gm. Distilled water 100 c.c.

The tube is filled to U with the filtered urine and the reagent added until the point R is reached, The tube is then closed with a stopper, inverted twelve times, and set aside for twenty-four hours. The reagent precipitates albumin, peptones, uric acid and creatinine.

At the end of twenty-four hours the precipitate will have settled and the amount of albumin may be estimated by the hight to which precipitate rises on the scale. The urine, if not already acid, should be acidified with acetic acid and its specific gravity should not exceed 1006. If it is too dense it may be brought to the proper figure by dilution with water, account being taken of the amount of water used. A temperature of 15° C is most favorable for the proper condensation of the precipitate. Occasionally the precipitate does not settle but part of it adheres to the sides of the tube; in this case the tube should be shaken and set aside again for the precipitate to settle.

To our former Fellow in Chemistry at Rush, Dr. J. E. Skinner, is due the credit of inventing a substitute for the Esbach albumimeter by means of which ordinary test tubes can be used. This device is known as the Skinner albumimeter card. It consists of a card on which are printed lines enclosing a space which when cut out along the lines forms a notch into which can be fitted a tube of a definite caliber. A tube of the proper caliber having been selected, it is filled with urine to the height indicated by the mark U on the scale printed on the card. In the same way the hight to which the reagent is added and



Directions for Using Dr, J. E, Skinner's Albuminometer Card.

Take a 6-in. test tube of approximately the diameter indicated on the card; place it against the card with its bottom on a level with the bottom of the card, fill with urine to the line marked "Urine," and then with the reagent (formula given below) to the line marked "Reagent;" place your thumb over the end, invert 10 or 12 times slowly and carefully, stopper, and set aside for 24 hours; at the end of that time place the tube against the card as before, and read off the number of grammes of albumin per liter of urine.

CAUTIONS:—See that the urine is slightly acid before applying the test; if it is neutral or alkaline add a few drops of dil. HCl and shake thoroughly before adding the reagent. If the amount of albumin is large, dilute the urine with one or two times its bulk of woter.

If the precipitate does not settle, invert again two or three times.

REAGENT, Prepared as follows according to Esbach's formula:--

Dissolve 10 grammes of picric acid and 20 grammes of citric acid in 800 or 900 c. c. of warm water, filter, and when cold add sufficient water to make 1 liter of solution.

to which the precipitate reaches are determined by the marks printed on the card. In this way a common test-tube is made to serve in place of the more costly albumimeter.

Accidental albuminuria is distinguishable from essential albuminuria by the presence of pus, or blood corpuscles, or some other evidence of the extraneous source of the albumin. When pus or blood is found in the urine the albuminuria is at least partly accidental. It is sometimes a difficult matter to decide, in some cases, whether some of the albumin comes also from the kidney or not. To do this requires a comparison of the amount of albumin excreted with the amount which would naturally accompany the amount of pus or blood present.

(To be continued.)

MALIGNANT TUMORS OF THE EYE.

By William H. Wilder, M. D., Professor of Ophthalmology, Chicago Policlinic Asst. Prof. of Ophthalmology, Rush Medical College; Surgeon and Pathologist, Illinois Eye and Ear Infirmary; Fellow Chicago Academy of Medicine, etc.

Upon an early recognition of growths of the eyeball or its adnexa and a prompt removal of the same, there depends not only the sight, but frequently the life of the patient. It is the intention of this paper to deal more particularly with those malignant growths which arise in the eyeball itself, but a brief review of those affecting adjoining structures may not be amiss.

The orbit may be invaded through the infraorbital fissure by a tumor in the nasal or the pterygo-palatine fosa, or through its floor by a growth originating in the maxillary antrum which, by pressure, causes the destruction of the walls of the antrum and the floor of the orbit. Again a tumor may extend into the orbit from the ethmoid cells or sphenoid antrum. Such growths according to Virchow, originate not in the mucous membrane that lines these cavities, but in the underlying bone. Carcinoma of these parts is extremely rare but sarcoma which is much more frequent, is usually secondary. Orbital tumors are not infrequent, for of 217 cases of tumors of the region of the face reported by Billroth, 18 were of the orbit. They may arise from the bony walls of this cavity, or from the optic nerve or its sheath, from the lachrymal gland or the cellular tissue, the latter being by far the most frequent. In a category of tumors arising in the cellular tissue would be included cysts such as encephalocele, extravasation cysts, retention cysts, dermoid and other congenital cysts, echinococcus and cysticercus, Angioma, lipoma, and enchondroma, although rare, may develop here. All these are benign in their nature and if they are early removed do not recur. A great majority of tumors of this region are unfortunately of the connective tissue type and are, indeed, sarcoma of either the round, spindle cell or fibrous variety. The same specimen may show all the different varieties. Sarcomata usually originate here, but they may appear as metastatic growths, the original tumor being in some neighboring part or even in some remote part of the body. They may arise from the lining periosteum, from the affected tissue of the orbit, or from the fibrous capsule of Tenon. We may also have cysto-sarcoma and cylindroma, the latter being particularly malignant, but none of these have a characteristic growth and a microscopic examination is necessary to determine their exact character. Upon the walls of the orbit arise osteo-sarcoma and osteoma, the latter being of slow growth and usually of great hardness.

The epithelial tumors developing in the orbit are epithelioma, adeno-sarcoma and adenoma. They arise either from the lids, lachrymal gland or from the eyeball and invade the orbital tissues secondarily.

Among the symptoms of orbital tumors, exophthalmus is probably the most prominent. It is rarely absent and is more or less pronounced according to the size of the growth. The location of the tumor may be approximately determined by the direction of the protuded eye. Defective motility of the eyeball occurs either because of pressure upon the muscles of the globe, or paralysis of certain nerves, and as a result of this there follows diplopia if sight is preserved. Ptosis may also be present. Pulsation of the eyeball may be felt if the growth is an encephalocele, angioma or orbital aneurism. Disturbances of vision may arise from pressure of the tumor on the eyeball, on the optic nerve or on the ciliary nerves, and as a result of such pressure optic neuritis may develop, followed by optic atrophy. The danger of life from such growths is great because of the invasion of the brain either from an extension backward or from metastatic processes and nothing but a prompt and thorough removal of all the diseased parts gives any hope of relief.

By far the most frequent malignant growth arising in the eyelids is epithelioma, which frequently begins on or near the margin of the lower lid. It may appear as a flat, warty mass, of very slow growth, which later may show a superficial ulcer and be covered with a brownish crust. Such a form may take years to develop to any extent and does not appear to be very malignant. The cervical lymphatics do not become indurated. Another form develops as a tubercle, of the size of a small pea, which soon breaks down and ulcerates and has a tendency to extend more rapidly and more deeply than the former variety, invading the orbit and causing enlargement of neighboring lymphatic glands. Surrounding the ulcerated area is an indurated zone in which the small epitheliomatous nodules appear. The disease must be differentiated from lupus and syphilis.

Treatment should be prompt and thorough. Complete removal of the growth with the knife, followed by a plastic operation to correct the deformity is, in most cases, the safest procedure, although in a few cases I have had an excellent result by thorough curettement.

Sarcoma may affect the eyelids, but it is quite rare. It must be differentiated from an ulcerating Meibomean cyst.

The malignant tumors that affect the conjunctiva are usually epithelial, although sarcoma, which may be of the melanotic variety, is seen sometimes growing at the sclerocorneal junction. Indeed, nearly all malignant growths of the conjunctiva as well as the cornea arise in the limbus, and epithelioma is rather a frequent type of growth in this neighborhood. This may be explained, according to Fucus, by the predilection that epithelioma has for attacking those parts where the epithelial covering changes its character as it passes from one part to another. Examples are familiar, in the frequency of epithelial growths about the anus, the lips and the eyelids. We have an analogous condition in the limbus, where the epithelium of the conjunctiva passes over to that of the cornea. A small nodule appears at the junction of cornea and conjunctiva, and grows sometimes with great rapidity. Although occurring in advanced middle life, it does not invariably do so, according to Saemisch, but may also occur in young individuals. This growth spreads over the cornea, but does not infiltrate it except when it is quite advanced. Even then it is quite easily removed from the subjacent corneal structure. It presents a grayish-white, nodulated, sometimes distinctly papillated appearance, and is accompanied at times with severe pain. Often these epithelial cancers are deeply pigmented and this form grows to a great size, separating the lids and projecting from the palpebral fissure.

Tumors affecting the cornea primarily are, from the nature of the structure, exceedingly rare. As has been said, they usually arise from the edge of it, where the conjunctiva passes over into the epithelial layer of the cornea. Here sarcoma may begin. It is almost invariably pigmented, of the type known as melano-sarcoma and makes its appearance at times in a small pigmented spot which may have been thought harmless. This part of the eye normally contains pigment, more noticeable in a person of dark complexion, in whom a distinct dark ring around the cornea sometimes may be seen. It does not always infiltrate the cornea, but often grows over it, although it can be demonstrated that the epithelial layer of the cornea passes up on to the tumor. It represents either a smooth or a lobulated dark brown appearance, is firm to the touch and bleeds easily because of its great vascularity. Often a tumor in this situation is an outgrowth from a similar mass inside the eyeball, that has infiltrated the ciliary body and sclera and extended its ravages to the structures on the outside of the globe. The prognosis is grave.

The question of attempting to save the eye, when sight is not affected, by carefully dissecting away an epithelioma or sarcoma from the cornea is an important one. When the growth is small and has not invaded the corneal or scleral tissue, it may be tied with some hope of success, but I am skeptical that anything short of enucleation will suffice to check such malignant growths.

It should be remembered that the nodule may be an outgrowth from an intra-ocular neoplasm. The danger of mistaking such a case for a localized sarcoma of the scleral region is not great if reasonable care is practiced.

Tumors of the iris are not common. Sarcoma of this part may be of the pigmented or white variety; the former is the more frequent as well as more malignant. The disease may occur at any age; as a primary tumor of the iris it is rare, being usually an extension of a growth from the ciliary body. When the growth is of the melanotic type it is easily diagnosed. When of the white variety it may be confounded with tubercle, gumma or cyst of the iris. The former will probably show a conglomeration of tubercles of a dirty grayish color, situated at the root of the iris; a gumma will not be so distinctly circumscribed and there will be a syphilitic history, while a cyst will show a pearlish reflex quite characteristic.

These growths may be so small and circumscribed as to make it possible to successfully remove them by an iridectomy. This should be large enough to exercise a considerable portion of the healthy iris around the tumor. At the first sign of recurrence, enucleation should be performed to prevent further spread of the disease.

Of all tumors affecting the eyeball, those most to be dreaded occur in the choroid, ciliary body and retina. According to Noyes, tumors of the choroid are met about one in fifteen hundred eye cases. Eighty-five per cent. of such tumors are said to be sarcomata, and of these the greater number are pigmented. Sarcoma may also spring from the uveal portion of the ciliary body. (Lawford and Collins in on examination of one hundred and three cases, report six affecting the ciliary body, one in the iris, two affecting both choroid and ciliary body, and ninety-four originating in the choroid behind the ciliary body). Usually the growth attains a considerable size before it is recognized, unless affecting primarily the region of the yellow spot, in which case the impairment in sight brings the patient promptly to a physician. It is customary to divide the clinical history of these cases into four stages:

1. A period of early growth before there is any irritation.
2. A period of inflammation.
3. Perforation of the eyeball and extension of the tumor outside the eye.
4. Metastasis.

In the first stage there may be no symptoms unless, as said before, the tumor encroaches on that part of the eye which is used for distinct vision. In this stage there may or may not be increased tension; although, as a rule, it is increased. If the physician is fortunate enough to see the eye during the first stage he may, by an ophthalmoscopic examination, discover the growth. He will then see a mass within the eye with comparatively smooth surface, over which the retina is seen to pass. The retinal vessels are convoluted because of the lobular condition of the tumor; and the retina itself is bluish-gray in color. A careful examination with a bright light may show that the tumor is vascular. The duration of the first stage varies from six months to four years. Fuchs found the average to be in sixty-seven cases, twenty-one months.

Most authors have found that males are affected rather more frequently than females. According to Lawford and Collins, 57 per cent. of the former and 43 per cent. of the latter are affected.

This is a disease occurring generally after the fortieth year; the average age of Lawford and Collins was 48.42 years. The average of 259 cases reported by Fuchs was 44.2 years. The average of cases reported by Freudenthal was 49.4.

With the beginning of the second stage there are signs of inflammation. The eye becomes painful and tender on pressure, the tension is increased, ciliary region injected, anterior chamber shallow and all the symptoms of acute glaucoma are present. In this stage there may also be bulging or staphyloma of the ciliary region, showing that the growth threatens to perforate the sclera. An interesting point, with reference to the subsequent history, is that the prognosis is more grave when the tension is increased; e. g., Lawford and Collins found metastatic processes more frequent in those cases presenting increased tension before enucleation, than in those in which the tension was normal.

In the third stage the tumor escapes from the eyeball and invades the surrounding tissue. The pain and distension that were present before, now disappear because of the relation of the tension. The mass grows with much greater rapidity. Unfortunately many of the cases do not come to the surgeon until this stage is reached, when the chances of an ultimately successful operation are greatly diminished. The optic nerve is invaded in at least one-fifth of the cases, and the prognosis is thereby rendered more grave.

In the third stage metastasis occurs most frequently in the liver, though it may occur in the lungs, brain, stomach, uterus, or other organs. Fuchs found that 18.5 per cent. of his cases suffered from metastasis. Hirschberg gives 38 per cent.; and in 32.9 per cent. Lawford and Collins traced death to this cause.

One of the greatest dangers to the patient is that of local recurrence, which is diminished if the eye is removed before the tumor has reached a sufficient tension and local irritation. As mentioned above, the tables of Lawford and Collins show that more cases are fatal when the enucleation is performed after the tension is increased than if it is done when the tension is normal. Once the growth has burst through the eyeball, the dangers are greatly increased.

Fuchs records local recurrence in 31 out of 235 cases, or 13 per cent. Freudenthal found 25 per cent. of local recurrence, 6 out of 24 cases, while Lawford and Collins note 8.86 per cent., 7 out of 179 cases. The danger of local recurrunce is greatest within the first year.

Prognosis—Lawford and Collins, in a report of 103 cases subjected to operation, were able to trace 79; of this number 39 cases, or 49·36 per cent., were alive at the time of the report. In twenty of these, an interval of three or more years has elapsed since the removal of the primary growth, and these are considered to be probable cures. This gives a percentage of recoveries of 25.31. The averages given by other writers vary from 6 per cent. by Fuchs to 38 per cent. by Freudenthal. Metastasis has been known to occur eighteen and even twenty-five years after the removal of the primary growth, but whether the tardy occurrence of such processes should be regarded as metastatic is certainly a debatable question. However, the possibility of such an event, even after the lapse of many years, should make the physician extremely cautious in his prognosis, even though the patient is apparently cured. The therapeutics of this question has naturally been considered in discussing the symptomatology and prognosis; it can be summed up in a few words—excise the eye as soon as possible after the diagnosis has been made.

Glioma is the only form of tumor affecting the retina. It takes its origin from either the inner or outer granular layer and in its growth may involve all the structures of the eyeball except the cornea and the lens. Histologically it is closely allied to round-celled sarcoma, being composed of small cells, sometimes with short processes, having a large nucleus and a small amount of protoplasm. It is difficult to demonstrate this protoplasm except on freshly prepared specimens. The intercellular substance is slightly fibrillar, but mostly composed of a semi-fluid material which gives the whole mass a consistency like soft brain tissue. The neoplasm is bountifully supplied with blood vessels. In its growth it attacks the choroid, causing a proliferation of the cells of that structure, and separating it from the sclerotic by spreading in the loose connective tissue between these two coats of the eye. In this way it may pass beneath the ciliary body and appear in the anterior chamber.

The tumor grows from the retina in clusters, well illustrated in the specimens, which give it a nodulated appearance often distinctly seen with the ophthalmoscope. Foci of the growth may develop in the vitreous and choroid and spread as independent tumors. After filling the eye the sclerotic is attacked, its fibrous tissue infiltrated and softened, until the tumor escapes from the eyeball and invades the orbit. Or, even before the mass has attained a great size inside the eye, it may find a way of escape through the point of entrance of the optic nerve, along which it then extends. Having escaped from the eyeball, the neoplasm takes on a more rapid growth in the soft parts of the orbit, and soon it presses the lids apart and presents itself as a hideous fungous mass which bleeds easily. Death may be caused by extension backward to the brain, or the exhaustion consequent upon the involvement of other parts, either by continuity or metastasis.

Symptomatology—Clinically, this disease, like sarcoma, may be divided into four stages. In the first stage there is no increase of tension and no irritation. The parents of the child may discover that it can not see with the affected eye, and that there is a whitish reflex from the pupil. This condition was named by Beers (one of the earlier ophthalmologists), "amaurotic cat's eye."

An examination of the interior of the eye with the ophthalmoscope reveals the growth with its nodulated surface, and possibly with the retinal vessels passing over it. Numerous smaller vessels in the tumor may be seen. As a rule, the vitreous remains clear.

In the second stage, symptoms of irritation and inflammation appear. The eye becomes painful, the tension is increased, the episcleral vessels are injected, the pupil is dilated, the lens and iris are pushed forward and the details of the interior are no longer distinctly seen. The cornea becomes cloudy and may ulcerate. In the third stage, there is perforation of the eyeball and invasion of the orbital tissues. The fourth stage ends the case with either extension along the nerve to the brain, or metastatic processes in the lymphatic glands or other organs, chiefly the liver.

This disease is one of early childhood, occurring very rarely after the age of ten and with greatest frequency during the first three years of life. Well authenticated cases are recorded by Knapp, Hirschberg, Vetsch, Lawford and Collins,in which the disease was congenital. Furthermore, it happens in about one-fifth of the cases that both eyes are affected at the same time, this symmetrical occurrence not being the result of extension of the growth from one eye to the other along the optic nerve, but an independent affair. The prognosis is absolutely fatal unless the eye is promptly removed.

If excision is performed during the first stage, and before the growth has invaded the optic nerve, there is some chance of recovery. The chances of cure are very slim, however, when the operation is performed in the second stage, when irritation and inflammation have already begun; and when done after the tumor has extended to the orbit, there is almost no hope, although a few cases of so-called recovery are reported, even after complete exenteration of the orbit was necessary to remove the growth.

One should not hesitate to enucleate both eyes if the growth is bilateral, for cases of recovery after double excision for glioma have been reported. Even where there is absolutely no hope, it may be the surgeons duty to remove the eye, and even the contents of the orbit, to relieve the little patient of his suffering.—*Ill. Med. Jour.*

DIFFERENTIAL DIAGNOSIS OF THE MORE COMMON PATHOGENIC MICROÖRGANISMS.

BY F. M. WOOD, '01.

GROWTH ON MEDIA.

NAME OF ORGANISM.	Gram's stain.	Motile?	Growth on blood serum,	Glycerine agar.	Potato.	Gelatine liqufaction.	Litmus milk acid or alkaline.	Glucose Agar	Bouillion	Indol reaction.	Urin.	Remarks on slides and plate cultures.
Diplococcus Pneumoniae.	Yes	No	Transparent jelly like dew drop colonies.	Dew drop colonies larger.	No growth.	No liquefaction.	Coagulated not acid.	No Gas.	Slight cloudiness.			No spores.
Bacillus Coli Communis.	No	Yes Slowly	Luxurient raised dirty white.	Raised rapid growth dirty white.	Ab'dt. brownish or dirty white growth.	No	Coagulated and acid.	Gas.	Cloudy and sediment.	Yes.	Colored brown and odor.	No spores.
Bacillus Typhosis.	No	Yes Rapid	White slightly raised.	Less luxurient but very similar to above.	Moist invisable shiny characteristic	No	No coagulation slowly becomes acid.	No Gas.	Diffused cloudiness & less sediment.	No.	No color No odor.	Grows slowly.
Staphyloccus Pyogenes Aureus.	Yes	No	Abundant yellowish white growth.	Moist shiny golden yellow.	Thick moist golden yellow.	Yes, at the top in a cone with yellow ppt.	Coagulated and acid.	No	Clouded.			Golden Yellow Colonies.
Staphyloccus Pyogenes Albus.	Yes	No	Abundant white growth.	Thick moist white.	Raised moist white.	Yes, like above with white ppt.	Acid and coagulated.	No	Clouded.			White spreading colonies.
Streptococcus Pyogenes.	Yes	No	Small white points.	White droplets minute.	Invisible.	No	Acid peptonified and coagulated.	No	Long tangled masses.			Minute white colonies
Micrococcus Tetragenes.	Yes	No	Mucoid appearance.	Thick slimy patch.	Luxurient white growth.	No	Acid.	No	Diffused cloudiness and sediment.			White colonies.
Proteus Vulgaris.	No	Yes	Grayish white mucoid spreading rapidly.	Minute thin grayish white growth.	Moist dirty white.	Yes. Anerobic No.	Coagulated.	Gas.		Yes.		Spreading colonies, marked odor.
Bacillus Subtilis.	No	Yes	Liquefied.	Abundant creamy layer.	Very abundant creamy layer.	Yes						Spreads rapidly.
Bacillus of Friedlander	No	No	Abundant grayish white.	Very abundant grayish white.	Very abundant gas bubbles.	No	Coagulated and acid.	Gas.				Putrifactive odor.
Gonococcus.	No	No	Serum & 2 % agar minute gray colonies.									Large oval spores, biscuit shaped.
Bacillus Diptheriae.	Yes	No	China white small colonies	Larger colonies china white.	Only on alkaline patato.	No	Acid; when culture is old, alkaline.	No Gas.	Sediment film on surface.			Very short rods.

KEY TO DIAGNOSIS OF TWELVE PATHOGENIC MICRO ORGANISMS.

COCCI
Group i. Destained by Grams' Stain--Gonococcus--grows on serum and agar 2 per cent.
Group ii. Stained by Grams' Stain.
Potato--No growth--Diplococcus Pneumonia
Potato--Invisible growth--Streptrococcus Pyogenes.
Potato--Thick moist yellow layer--Staphlococcus Pyogenes Aureus.
Potato--Thick moist white layer--Staphlococcus Pyogenes Albus.
Single large cocci in stained preparations Pyogenes Albus.
Cocci in fours Micrococcus Tetragenes.
Cocci in chains Streptococcus Pyogenes.

BACILLI a. Non Motile.
Group i. Staines by Grams' Stain B. Diptheriae.
Group ii. Destained by Grams' Stain B. Friedlander.
b. Motile.
Liquefies Blood Serum B. Subtilis.
Does not Liquify Blood Serum
Liquifies Gelatine. } Proteus Vulgaris.
Does not Liquify Gelatine.
Forms gas and Indol. Bacillus Communis Coli.
Does not form gas and Indol. Bacillus Typhosis.
Colors urine brown and creates marked odor. Bacillus Coli Communis.
Does not color urine nor impart odor. Bacillus Typhosis.
Group iii. Grown Difficulty in Culture.
Grows in two weeks on Glycerine Agar.
Dirty Crinkled Growth.
Stains only and retains stain with acid by the Ziel-Neilson stain Bacillus Tuberculosis.
Grows only on agar with blood serum surface smear Bacillus Influenzae.

The Corpuscle

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The changes in the faculty announced upon another page of the CORPUSCLE are the first steps toward making Rush College the foremost medical institution in this country, if not in the world. Among the new professors are some of the most able men of the country, and their names will add great strength to the faculty. All those interested in the welfare of Rush will welcome the advent of such men as Dr. Barker and Dr. Loeb. We are sorry to say that some of these promotions are manifestly unfair to one member of the faculty, who has always been a staunch friend and an earnest worker in the college. But we trust that soon this will be corrected.

By the new arrangement whereby the first two years will be given at the University of Chicago commends itself. There much better laboratory advantages may be obtained than the present building, overcrowded as it is, can offer.

The board of trustees have promised that in the near future the block where the clinical building now stands will be covered by magnificent new structures. It is also rumored that before another year has rolled around that a new maternity, rivaling the Sloan of New York, will be erected at the corner of Harrison and Hermitage streets. May our most fond dreams be realized!

Rush is known throughout the land as an institution which turns out practical men; men who are able to step out into the profession and meet its emergencies. Let us hope that under the new regime that the practical side of medical education in the halls of Rush, will not be lost sight of in the all engrossing struggle after theory. Perhaps this one tendency may be the greatest danger which confronts the new system. But the friends of Rush have confidence in the same spirit of tutelage which guided the founders of the college.

PRINCIPLES VS. METHODS IN RAILWAY SURGERY.*

By A. I. Bouffleur, B. S., M. D., of Chicago. President of the International Association of Railway Surgeons.

The topic of the paper, or subject, which I thought would be of interest, is that of "Principles vs. Methods." Now, I do not expect to say anything particularly new, but I would like to call the attention of you gentlemen who are practical surgeons to the bearing of this phase of our work. To analyze just a little bit, the "principle" is defined as a fundamental truth and accepted as a notion of the fact. The "method" is simply the manner of doing a thing. Now, then, these two, coupled together, would simply mean that the title, if it was expanded a little, would mean—fundamental truth vs. the manner of doing things in railway surgery. Now there is no conflict between these two. One is really subordinate to the other, and that is the phase of the question which I wish to bring out, that a method is simply the application, or the means of carrying out principles or of securing a desired result. As an illustration of the difference between means and methods, I might illustrate by an example from intestinal surgery. It is a well-known principle that the lumen of the intestine must be kept open, there must be a continuous open tract. It does not matter what precise means you use, whether the suture, the bone plates or Murphy button, you must keep the continuty of the lumen, regardless of the method. One is principle and the other is method. The principle is not improved upon; it is just the same to-day as it was a hundred years ago. The method has been very greatly improved upon. In herniotomy the principle, of course, is to restore the abdominal wall to a normal condition, so that hernia will not recur. That is the principle, but all of you have been taught uniform methods of doing that. Some successful in your hands, perhaps, and in others not, and at any rate all the simpler methods, and each man has been attempting in his own way to get at a better plan, a surer plan of following out that principle.

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*Read before the Iowa State Association of Railway Surgeons.

The McEwen operation, for instance, is so ingenious in its various respects that many ascribe to it new principles. Really I don't think they are especially new principles, except they are new methods which go beyond restoring the part to its normal condition, rather fortifying it, making it stronger than normal, as some would say. That is, the method was really a distinct departure to such an extent that it should be called a new principle in surgery. The same with the Bassini operation, the important feature of which, as you know, is the making of a new canal. Now Bassini, in attempting that sought not only to restore the normal structure, as we find it in the female, but to fortify the little opening that must be left for the cord, so that a return of the hernia could not occur. It is simply a method—a good method it is true—and it has brought out good ideas as to attaining this primary or original desire in the operation. These two illustrations, I trust, will emphasize or illustrate sufficiently the difference between a principle and a method in the abstract. Now, methods come so close on to principles that we cannot differentiate between them. For instance, I should say there are technical points about the Bassini operation that really bring out new principles, new ideas, so great in their departure from the normal that they are really to be dignified by the term of being a principle.

I wish to emphasize the fact that no surgeon should be a slave to any method. I think one of the greatest opprobriums that can be cast on the medical profession in certain work, is that we are too much in the habit of calling on one another, or attempting to do it. There are no operations that are equally successful in the hands of imitators and in the hands of the originators. That would, therefore mean, that instead of being a slave to methods, we should be masters of principles. I would much rather have a man operate on me for hernia if he understood what was called the principle of it, than a man who simply thought he understood and knew Bassini's operation. For this reason: Within a month I saw a dozen men and talked with them—I can say in round numbers a dozen. It may have been ten or may have been fourteen—about Bassini's operation, and no two of them had the operation alike. Why? Simply because it is a method; it is Bassini's method, and in reading the method they have got some of the technical points wrong in their mind. If they have a principle, however, there need be no danger but what they will have a good result, do a good operation; perhaps not a perfect, but a good one. We are not supposed to do perfect operations. Very few of us attain perfection to-day. I know of a Chicago doctor who not long since said he did not worry about his patients, because he knew the operation was perfectly done, and if they died it was their own fault. If you are going to have all of our surgeons —and this applies to physicians as well—be masters of the principle, then it, of course, implies that they must have decision, and if we are going to ask our surgeons to master the principles, regardless of methods, then it means they must have ingenuity, inventiveness. In other words, a man who is simply a master of principle, without any method, must be able to make methods. Now, each of us know whether or not we can do that. I have, as an illustration attempted to do a Bassini operation or modification of it frequently, yet not infrequently I modify that very considerably in a given case. I think that is the proper spirit. I do not suppose there is any man, as I said before, that can do operations quite as successfully as Bassini did. Certainly no man has ever been able to obtain the successful results with the McEwen operation that McEwen did. The next point is—following along that same line—that it is not always the most learned that make the best practitioners; it is not always the wisest man who can most apply his knowledge. I dare say you have known men in your respective communities who are men of very limited knowledge, indeed, and yet have great success in a particular line of ailments. Some will have remarkable success with fever; so much so that he will be known as a "fever doctor." I think in nearly every large community that certain doctors are known as especially good in fevers. Now I don't suppose they have paid particular attention to fevers, but their study has brought them into contact with the subject. It is easier for them to master it than for you or I. That is what makes the specialist; it is what makes the gynecologist, the eye and ear man, because he has found a certain line where it is more conducive to his pleasure, to his interest, and that in that work he is more successful as a practitioner. That sort of a specialist is a successful specialist always. The man who is not a successful one is the one who selects his specialty when he enters college. That man is never successful, no matter how old he may be. I happen to know a distinguished gynecologist who has never practiced generally. I know a man who met him once in consultation—the late Dr. Byford—in a case of pneumonia, complicating one of his cases. The doctor's description of the gynecologist's behavior in auscultating that pneumonia case would be creditable to Mark Twain or some other humorist. Now, the principle treatment for pneumonia you gentlemen must know—everybody must know. I may not see a case of pneumonia once a month; you may not see one once a week—may not see one for several months. Is it possible you treat each the same way, or the way that Flint or Lawrence or somebody else told you? I don't think you do. You have the principles of pathology that you use in treating that patient. The methods are a part, but are a subordinate part, of the principles. Methods which are based upon principles, well grounded principles, principles that are accepted, are what is making medicine and surgery what it is to-day. You don't need to think long; just think of antisepsis or asepsis, perhaps, is better. Asepsis to-day is not what it was fifteen years ago. The principle is just the same, though, gentlemen. The principles or dogmas that Lister enunciated are just as true to-day as they were at his time, but you don't use the seven or eight different layers of Mackintoshes. You don't use the spray; those are simply methods following Lister's discovery in the treatment of wounds. His method has been relegated long since, because we have improved upon it. It is just the same with chemical disinfectants. How many of us use strong bichloride today? Lots of us do, but not nearly as many as did five years ago. Why? Simply because we have found simpler, more innocuous ways of accomplishing the same purpose, fulfilling the same principle. Many of us now do not use chemical disinfection at all; some rely entirely upon mechanical disinfection. It does not matter; that is a method.

Just a few points now to illustrate what I mean as to the different forms of railway injury. I think this subject is particularly germane, because ours is an emergency work; we have no time to consult anatomy, text-books, to call in a consultant to share the labor with or guide us; have not time to consult anybody at any great distance. We are therefore placed suddenly upon our own merits; must rely upon our own ability in every respect. It is in this kind of work that principles are of so much value. Take, for instance, the subject of fractures. I know the names of a few fracture treatments—a few boxes, a few things of that sort that I unfortunately remember. In teaching my students I try as much as possible to avoid mentioning them, not from any disrespect for the inventor, but to impress the student with the underlying principle rather than the method. Now, fractures are produced by mechanical force. The bones form the frame work of the body and the fracture of one bone is a disturbance of the framework, as it is one of the pillars of the body. The mechanic treats these fractured pillars, knowing that he has a defect of the lines, and we must treat the human frame exactly the same, with the single exception that we cannot drive nails in a fracture. The treating of fractures is simply reduction and retention. It is immaterial to me whether you reduce it in one way or another; whether you apply Hodgen's splint or hang Buck's extension to the leg, or what not. If the surgeon understands the principle of reducing and retaining the fragments in proper apposition so that the fracture is reduced and the limb in proper direction, he is the man that I want to dress my fracture when I have a broken bone. Just one point in illustration. I remember this from my old teacher, Dr. Gunn, who, I think, was one of the grandest teachers on fractures the country has ever produced, because he tried to teach principles rather than details, and that was in control of fractures. If you could not control the symmetry or the shortened bone to bring it into line with the long one, why bring the long one into line with the short one It is not a good practice; it is universally recognized, a principle, in fact, that pressure should not be made over the subcutaneous end of a fractured bone, no matter where it is. So thoroughly grounded was it that he stated, do not make pressure on the end, but bring the limb up to a line with it. It is the principle and not any particular man's way of doing it.

The next point is as to dislocations. It has not been many years since all of you, perhaps with the exception of a few of the younger men, have seen patients in the clinical amphitheater put on a table, strapped down, or the equivalent, and the pulley used to reduce a recent dislocation. A dislocation is a disturbance of the mechanism. The reason a dislocation is not readily reduced is on account of the tension, not, of course, of the torn, but the untorn part of the ligament. So much so is this recognized in the ball and socket joint the principle was evolved that in order to reduce a dislocation it is necessary to relax the untorn part of the ligament and reverse the force. This was done in order to treat the ball and socket, and it is just as true in the treatment of dislocation of the knee-joint. If you think a few moments as to how you reduce a dislocation of the wrist or the elbow, you will find you reduce it in the same way, no matter what method is resorted to; either by force or tearing the untorn part of the ligament and then reversing the force. Now, the Kochner method, which all of you have seen in recent text-books, accomplishes the same thing. It is not putting it in that position, but it does the work just the same, because you relax the untorn part of the ligament by irritation and then by a little maneuvering reduce the head. The same thing with the wrist.

You have just had the subject of amputations up for discussion. I have always insisted that there were but two general principles underlying amputation, with some subsidary ones of great importance. The first object, to save life and the next to secure a useful stump. To save life, gentlemen, is an object which I wish to emphasize in railway practice. The time has long since passed when the rule to amputate every limb as soon as you get hold of it was countenanced. The public even know better now, and that there are but few limbs that must be amputated immediately. On the other hand, it is a well-known fact that many lives are sacrificed by amputation. I am not going into the general subject of shock, or waiting for shock reaction to take place, etc., but simply to state the general principle that a limb should be amputated when it is completely crushed off or the tissues so damaged that they are beyond repair is good practice. That is true, but for the sake of the patient's life it may be advisable to wait two or three days before you do it. I happen to have encountered a case within the past month in which a doctor lived five or six miles away and it would not be convenient for him to go back the next morning, so he attempted to amputate and the man died on the table. As for the surgeon, it served him right; but how about the man? Now, the principle to save life is more important than to attempt to save the limb. We can shape the limb afterward; cut it off again if necessary.

I will not mention all of the points in regard to saving a useful limb, but simply one to illustrate the principle. I think some one—Dr. Thompson, if I recollect right—said we should save all we can, provided we can make it useful. Now, that is a principle; it is a well-known law that applies to every injury, be it slight, incidental or major in character. I just mention one thing: One gentleman had the use of a stiff finger, or a finger without a flexon tendon. For a railroad man, for instance, what is an index finger without a flexor in it? You injure the man's life, injure his hand and incidentally his life, by leaving a member that makes him so much more liable to injury. Some of you gentlemen have been taught certain fixed method of making flaps. Where it is practical it is best to so shape the flaps that the cicatrix will be out of the way of irritation, no matter what method is employed. As regards flaps, I don't do two amputations alike in six months. I am sure, because the injury to the part prevents my doing so, and saving all we can make useful. Some favor a circular amputation, as a method, but I dont believe it is a proper one ordinarily, because you have to sacrifice tissue, as a rule, that you could use to advantage.

Now, gentlemen, I refer to another phase of the subject. Railway surgery is in its infancy in a way; there have been railway surgeons for only a few years. The practice is constantly increasing; more is required of them, more is expected of them and they are much better qualified to do their work. The railway surgeon himself is more than an ordinary surgeon; it takes something in addition to make a good railway surgeon.

He must not only be a good physician, as well as a good surgeon, but he must also have svch a bearing toward people, a stranger to many of those with whom he comes in contact, that he retains their respect and influences them to a way that honest men should conduct themselves. I know of no road which will ask an unreasonable thing of a doctor. It is true that some doctors act as claim agents, but I do not believe any road would ever discharge a doctor if he refused to act as a claim agent. On the other hand, I might say, if you will pardon me, doctors frequently want to leave tne profession and become claim agents, because they like that kind of work. If you will look up the matter of claim agents on the roads, you will find it more a matter of choice than of request. The fact is, the railway surgeon must be more than an ordinary surgeon, must be a cool man, a man who can act in emergency, who will not lose sight of the fact that he is working for three classes of people: the injured party, the company and himself; three interests that he should always respect, and he should never lose his self-respect in respecting any other person's interest. On the other hand, I would like to emphasize the fact that the commission of a railroad does not give him any qualification that he did not have before. The necessity for his working, studying, attending society meeting and working in them, writing papers, etc., is not cut off on account of his holding a commission as railway surgeon. There are two times in a man's life when he feels like quitting work; one is when he gets a diploma; another is when he gets some appointment or political office—something of that sort. Too many surgeons quit working in that way. Now, railways appreciate the value of services better than any other corporations; pay better salaries to get the best business intellect, and get it because they pay for it, and always recognize the doctor who tries thoroughly to fit himself and stand by him in case of a law suit better than than they will if he is simply satisfied with his appointment and stops work and reclines on his commission as railway surgeon, and therefore does not need to work any more.

As to medical societies. I mentioned the fact that the doctors would be appreciated if they would work. There is no way that the ordinary doctor acquires so readily as by attending societies; this is true of railway surgeons the same as any other. You may say at once, or some may, that there is so much trash. etc., there is but little good to be derived, but if you will recall a little bit and think over your the success of your educational work in local schools, etc., I believe you will bear me out in the statement that what is best for the majority of the pupils and students of any sort is good for all, and that which is good for only a few is sure to do harm to some. Now, I believe that is a proper theory and it applies to medical societies. What is best for the majority of us is good for all of us, and that which does a small number of us good is less likely to do somebody else harm. I never listened to any discussion at a medical society without gaining some good from it. I know there is no method by which doctors can interchange ideas so freely, can gain so much personal good, can learn so many new principles, as getting together in bodies just like this, where each one knows practically every other one well, and you speak your mind out freely. You make your mistakes publicly and you are corrected publicly, but good-naturedly, and therefore you say when you get home: "I have learned something at that meeting." If you have only learned one point, how to save one pain, one limb, one finger, the time will be well spent, the recreation will not hurt you I am sure, the personal friendships will be permanent and the benefit you derive professionally will be of lasting benefit to you.—*Railway Surg.*

THE MOST IMPORTANT POINT TO BE CONSIDERED IN THE TREATMENT OF APPENDICITIS.

By A. J. Oschner, M. D., (Rush '86), Chicago.

In all of my experience in observing and treating appendicitis, one point has impressed itself upon me more strongly and more constantly than all others, because whatever views one may have regarding the treatment of appendicitis, this point, if borne in mind, will do more toward saving the lives of these patients than any other.

I refer to the natural elimination of the appendix. Its peculiar anatomical location makes it possible for the omentum and the small intestines to apply themselves around the appendix in such a manner as to practically isolate it from the general peritoneal cavity, in case it becomes inflamed. Whoever has frequently operated on patients soon after the beginning of an attack of appendicitis, knows that this organ when inflamed, is immediately surrounded by the omentum, and beyond this is a perfect embankment of small intestines. I have demonstrated this condition in several hundred cases, so I know this to be a fact, and not a theory. I wish to say at this point that whatever I have to say in this direction is not for the purpose of condemning or discrediting the surgical treatment of this disease, but for the purpose of reducing the mortality.

Taking a case of appendicitis in which the appendix has been surrounded in the manner described above, what may we expect in case this condition remains undisturbed? If the patient suffers from a catarrhal appendicitis, this condition will subside in a comparatively short time and the patient will recover. On the other hand, let us suppose that the patient is suffering from perforative or gangrenous appendicitis. Then the affected portion will again be surrounded and eliminated in the same manner, and we will have a comparatively harmless circumscribed abscess. We have, however, taken for granted that the conditions which I have described above have remained unchanged. In case the small intestines are drawn away from the omentum and the omentum from the infected area, we have at once a much more serious condition, because the infectious material is likely to be distributed in the peritoneal cavity, and the patient is in danger of suffering from diffuse peritonitis, which is very likely to prove fatal.

It is difficult to determine the cause of this change in the conditions, We know that as soon as milk, or any other food which is not absorbed entirely from the stomach, is placed in this organ, peristaltic motion of the small intestines commences at once, and this disturbs the conditions of safety which have been described. Moreover, the intestines will at once become distended with gas, which is forced through the ileocecal valve, and this further disturbs the favorable conditions which had previously existed. When we treat inflamed tissues in any other portion of the body, we first secure as perfect rest as possible for the part; why should we then disturb an inflamed appendix unnececsarily? We can obtain this condition of rest by prohibiting the patient from taking the slightest quantity of any kind of food by mouth. I am very certain that a very small amount of food given by mouth starts frequently peristalsis, which changes an innocent circumscribed abscess into a fatal general peritonitis. In other words, it often takes but a very small amount food given by mouth to kill an appendicitis patient.

These patients can be nourished by rectal feeding. Any one of a number of the concentrated foods in the market, dissolved in from three to four ounces of normal salt solution and administered by enema through a rectal tube, once every three to six hours, will support the patient for several weeks, if necessary. It is well to give an enema of a pint to a quart of normal salt solution morning and evening, according to the patient's capacity, never giving enough to cause pain. If the patient can take water, preferably hot, in small often-repeated quantities, by mouth, without being disturbed by pain or nausea, this may be given; otherwise, nothing at all is given by mouth.

In case the patient vomits, gastric lavage should be employed, and if no further food is given the vomiting will invariably stop after one or two irrigations.

This method of treatment disposes of the two causes of pain, viz., pressure from gas, and friction upon inflamed intestinal surfaces, due to peristalsis. I have used this method in a large number of cases since 1892. I have operated on many of these cases later on and have found a gangrenous or perforated appendix in a circumscribed abscess.

Many of my friends have used this method and have reduced their death-rate enormously.

Many cases which are practically in a hopeless condition, either for operation or for treatment by the usual palliative measures, which permit the patient to take liquid diet of some kind, will recover if treated by this method.

The question of differential diagnosis has been so frequently mentioned in appendicitis discussions that it may be well to say a word in this direction.

We will suppose a case in which it is doubtful whether the patient is suffering from a severe attack of gastritis, enteritis, or peritonitis due to infection through the Fallopian tube, or a threatened perforation of a gastric or an intestinal ulcer, or an appendicitis. Could their be any more appropriate form of treatment than that described above? It is consequently plain, that in any case, no matter what form of treatment one may favor, no harm can come to the patient from utilizing the plan just pointed out, while in cases in which for some reason, an early operation cannot be performed, or in cases seen too late for an early operation, a very dangerous, acute condition can be safely changed into a very harmless chronic condition, which can be permanently relieved by a perfectly safe operation in the interval.

There are two conditions under which this treatment is liable to fail: 1. In very emaciated patients the omentum may be too small to cover the appendix and can, consequently, not offer the proper protection. In such cases I believe an operation should invariably be performed at once, when the diagnosis has been made, but it is very seldom that emaciated patients suffers from appendicitis. 2. In patients whose attacks commence directly after taking an unusually large and especially indigestible meal, the food in the stomach or the intestines may continue to keep up the peristalsis, and give rise to the formation of gas which will disturb the inflamed tissues in passing through the ileocecal valve. In these cases the stomach should be thoroughly irrigated at once to remove the food which still remains, and if there is any regurgitation from the small intestines this should also be removed by gastric lavage.

My experience has taught me that it is best to continue the exclusive rectal feeding for at least four days after the patient is apparently well, and never to give a cathatric of any kind unless I see them within a few hours after the beginning of the attack, in which case I usually give two ounces of castor oil in beer or malt.

After the first day the cathatric may give rise to the same disturbance as feeding by mouth, and it may be followed by the same deplorable results.—*Hot Springs Med. Jour.*

What just floors the whole creation
Is a lager brimming stein;
Foaming over, brown or yellow—
Brings a fellow into line.
Just the thing for each lone medic
Who has taken for a week
In his head the queerest sayings
'Bout green pus and reddish eke,
Murmurs soft and bruit diable,
Fractures, dislocations old,
Circulation of the fœtus,
Gonococcus, abscess cold,
Gosh, besides, those fibroid tumors
That with arrogance pretend
To be taken for a baby,
And the signs of such one lend,
Plans for better men and women,
Criminals to be no more
Part excision of a main cord,
Take the evil by its core,—
But I've found the cure to straighten
Out these troubling thoughts of mine,
Laws, what wonder, just imagine
Always empty is this stein.
Reformer.

CHANGES IN THE FACULTY.

At a recent meeting of the Board of Trustees the following changes and promotions in the faculty were made: Dr. L. F. Barker of Johns Hopkins University was made Professor of Anatomy, Professor Bevan being transferred to the surgical staff. Dr. H. B. Favill will be Professor of Therapeutics and Preventive Medicine. Dr. Brower, formerly Professor of Materia Medica, Pharmacy and Therapeutics is made Professor of Mental and Nervous diseases. Prof. Frank Billings will have charge of the department of Medine, jointly shared with Professor Herrick, Lyman and Dodson; the latter being assigned to the department of Pedeatrics—Dr. Dodson's successor as Professor of Physiology, will be Dr. Jacques Loeb, of the University of Chicago.

Prof. Billings has been chosen Dean and Henry M. Lyman, M. D., becomes vice-president; Elmer R. Irwin, M. D., is appointed assistant in the Department of Anatomy; Edward P. Lyon, Ph. D., of the Bradley Polytechnic Institute, Peoria, to be assistant Professor of Physiology; Frank Hacking, M. D., Ernest L. McEwen, M. D., and Oscar T. Roberg, M. D., assistants in the Department of Chemistry; Arthur R. Cushny, M. D., University of Michigan, Professr of Pharmacology and head of the new department of Pharmacology and Materia Medica. Charles A. Wade, M. D., reappointed associate, Fred T. Hollenbeck, M. D., promoted to associate, and F. A. Sprague, M. D., appointed assistant, and Chas. J. Rowan, M. D., reappointed fellow in the above department; H. Gideon Wells, M. D., promoted to an assistantship, and Theodore Tieken, M. D., appointed to a fellowship in the department of Pathology. Bertram W. Sippy, M. D. is promoted to an assistant professorship, F. S. Churchill, M. D., to an instructorship, and James A, Harvey, M. D., assistant to an associateship in the department of Medicine. D. W. Graham, M. D., is promoted to an assistant clinical professorship, E. J. Senn, M. D., to an instructorship, and Albert B. Keyes, M. D., to an associateship in the department of surgery. C. E. Paddock, M. D., is appointed assistant clinical Professor, Henry F. Lewis, M. D., is promoted to an associateship, and Palmer Findlay, M. D., made an assistant in the department of Obstetrics and Gynecology. Otto P. Freer, M. D., is promoted to an instructorship, Joseph F. Dolamore, M. D., and George A. Torrison, M. D., to associateships, and John C. Williams, M. D., is appointed to an associateship in the department of diseases of the chest, throat and nose. Cassius D. Westcott, M. D., and William H. Wilder, M. D., are promoted to assistant professorships. Elmer A. Lawbaugh, M. D., assistant to an associateship, and Robert A. MacArthur, M. D., to a clinical associateship; L. E. Schwartz, M. D., Cassius C. Rogers, M. D., and George E. Shambaugh, M. D., are appointed to assistantships in the department of Ophthalmology and Otology. Frank Hugh Montgomery, M. D., assistant Professor, is promoted to an associate professorship, and Alfred Schalek, M. D., is appointed to an associateship in the department of diseases of the skin, genito-urinary and venereal diseases. The position of anesthetizer to the surgical clinics is established, the incumbent of this position to have the rank of an instructor.

COLLEGE NOTES.

N. W. Getts, 1901, has returned to college after four weeks illness.

R. H. Cox is in the Presbyterian Hospital with peritonitis.

J. W. Ramsey, 1901, is home ill with typhoid fever.

M. H. Ross, 1901, has been confined to his room.

Dr. Donlan was called home on account of his father's illness. Dr. Irwin took care of his practice.

W. A. Hemingway has returned to college.

Walter H. Sheldon of the Senior class has been appointed to a two years interneship in St. Luke's Hospital of this city. His term of service will commence in June.

D. H. Boyd and C. D. Early have moved from 670 West Monroe St. to 140 Ashland Boulevard.

Dr. Donlan called home to the death-bed of his father during the second week in March.

Dr. Harold N. Moyer read a paper on "Castor Oil in treatment of Neuralgia" before the Chicago Academy of Medicine—March 9.

At the meeting of the Chicago Medical Society on March 28, Professors Hektoen, Belfield and Moyer presented papers.

E. W. Quick, 1902, will leave college this term, returning to attend the summer quarter.

P. G. Young has returned to college.

Answers to questions in Sophomore Physiology during the recent examination:

QUESTION. What is the difference between inspired and expired air? ANSWER. Inspired air is *scarlet red* while expired *air is purple.* QUESTION. With what instrument is the pulse measured? ANSWER. The *micratome.*

The base ball team opened the season with a practice game with the West Division High School.

Prof. N. Senn is given an extended bibliography in the *Medical Mirror* for March. Dr. Byron Robinson is the author.

Chloralamid is recommended by Dr. Daniel R. Brower, in a paper read before the Seventh International Congress on the Abuse of Alcohol, at Paris, April 4th, 1899, to procure sleep in patients suffering with acute alcoholic delirium and acute alcoholic mania. He used the combination of

Chloralamid	15 gr. (1·0)
Hyoscin hydrobrom	$\frac{1}{100}$ gr. (0·0006).

At the meeting of the Rush Medical Society held Friday night April 6, the following program was presented:

"A Case of Atrophic Cirrhosis of the Liver with Varicose veins of the Esophagus." by F. G. Murray, 1900.

"A Case of Exfoliative Dermatitis" by C. M. Gleason, 1901.

"A Demonstration of Gynecological Specimens" by Prof. T. C. Webster

Professor A. C. Cotton will spend a rather busy vacation. On May 1, he will read a paper "Congenital Heart Disorders" before the American Pediatric Society, this being the triennial meeting of the American Congress of Physicians and Surgeons, of which it is a department. At about June 1, he will also present an article before the American Medical Society which meets in Atlantic City. Professor Cotton will deliver the annual public address at the meeting of the State Medical Society also in June. On May 7, he will lecture before the annual meeting of the Fox River Medical Society held at Elgin Ill. The Professor's new book on "The Anatomy, Physiology and Hygiene of Childhood" will appear in about two months. This will contain many illustrations and it is designed as a manual on the subject. Consequently its appearance is looked for with much interest on the part of the student and the medical profession.

ALUMNI NOTES.

'99. A. N. Chamberlin is located at Philipsburg, Mont., and would be glad to hear from any of his classmates.

'99. Dr. Art. Randolph, spent a few days in the city recently.

'96. Dr. W. L. Palmer, located at Glenville, Minn., has all the work he can attend to. He is Surgeon of B. C. R. & N. R. R.

'93. Dr. R. W. Holmes, leaves for Europe, May 1, for a years' sojourn. The time will be spent in England and Germany.

'93. Dr. D. G. Hoxie, of Belmont, Ia., has recently taken Dr. N. E. Hoxie, 99' into partnership.

'89. Dr. Geo. F. Butler, Chicago, will assume charge of the Alma Sanitarium, Alma, Mich., May 1, succeecing Dr. E. S. Pettyjohn, who resigns the superintendency. He will spend a year in rest and medical study abroad. Dr. Butler will continue with his work in the College of Physicians and Surgeons.

'75. The following is from the Chicago Times-Herald:

Dr. Albert B. Strong, widely known as a writer on surgical and medical matters, died yesterday in the state asylum for the insane at Kankakee. Death was due to exhaustion, brought about by maniacal excitement, the attack being an acute recurrence of three similar reffictions. The remains were removed yesterday to Dr. Strong's late home, 533 West Monroe street.

Dr. Strong's death was known last night only to a few of his friends, and his confinement in the asylum only to his intimate acquaintances. The commitment to the state hospital followed a triel in chambers by Judge Carter of the County Court. Dr. Strong, following the trial was not sent to the detention hospital, but was quietly conveyed direct to Kankakee March 6.

"When I came to Chicago in 1875 Dr. Strong was here, and he was regarded at that time as one of the rising young men engaged in the practice of surgery," said Dr. Daniel R. Brower. "His advancement was very rapid, and at the time of his mental derangement, he was considered by the medical fraternity of this city as having few equals in his profession.

He entered Medical College in 1872 and graduated in 1874 with high honors. The faculty recognized his ability, and he was appointed a member of that body as demonstrator of anatomy. He continued in that position until 1885, when he resigned to practice his profession.

"About six years ago he lost the sight of one of his eyes. This incapacitated him for the practice of his profession. He continued to fail in health from that time, and, after spending some time in various sanitariums without relief, it was deemed wise to have him adjudged insane."

Dr. Strong was born at Galesburg, Ohio, in 1844, and after receiving a common school education he entered Kenyon College, where he graduated, receiving the degree of master of arts. He served during the civil war in the Eighty-fifth Ohio Volunteer Infantry and was a member of George H. Thomas Post, G. A. R. During his career as a physician he was an active member of the Chicago Medical Society, Illinois State Medical Society, America Medical Association and a member of the Church of the Epiphany. The funeral will be held from he family residence Monday.

'55. Allen A. Rawson, M. D., died February 26, at Corning, Iowa. He was born in Tiffin, Ohio, in 1831, and was a graduate of Rush Medical College, Chicago, class of 1855. He was the first physician to locate in Adams County, Iowa, and was prominent in educational matters in his district.

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PROFESSOR CHRISTIAN FENGER'S CLINIC.

By Byron Robinson, B. S., M. D., Assistant Professor of Medicine Rush Medical College.

All the medical world knows Doctor Christian Fenger, the eminent surgeon and founder of pathologic anatomy in Chicago. He is so well known that no given name or titles are needed to distinguish him from any other Fenger. When one wishes to note the gathering of the flower of medicine in Chicago, let it be known that Fenger will read a paper. Yet he reads it with labored speech and it is not for eloquence that progressive men go to hear him, but for downright, simple, scientific facts, for which the profession are now in need. For a score of years the labor of this active surgeon and industrious student has enriched the world of medicine. For a score of years the medical science of Chicago has been benefitted by his industry, his fame, and it is building an enduring monument to his name. Fenger is a quiet man of simple life, not given to talk, but dwells much alone in the serenity of his own thoughts. He counsels much with his own mind, as strong men are wont to do. Perhaps no medical man in American can exhaust a paragraph with the perfection of Fenger. His mind is superior in the power of analysis and in the grouping of the evolution of facts he has few peers.

Fenger became great by great labor, His genius is that of work. He conquered fame by industry. Nothing is too great for him to accomplish. Having superb physique, a large brain fed by a powerful heart, with a rarely gifted mental vigor, he is possessed of the wonderful combination which insures success, mental power and physical endurance. Fenger does not waste his energies on society. He is a man of vast conceptions which all do not easily comprehend. He compares favorably with Virchow, in both his mental power and his method of labor. Both keenly analyze phenomena, and both keenly realize the relations of facts. Both Virchow and Fenger, like Darwin, work with sublime objects in view. Bold in the confidence of pathogenic facts, accomplished in the diagnosis of disease, possessed of the best surgical skill, he has literally carved his way to the head and front of Chicago surgeons. As a surgeon in pathologic anatomy, Fenger has few peers. He is Chicago's sceptered surgeon in pathologic anatomy. He is a broad-gauged man, comprehensive in his views and practical in his methods. His capacity for work is marvelous, as is evidenced in his practical labors and papers, which are rich in scientific knowledge.

Dr. Fenger lives in simple style in an unpretentious house. In his voluminous library, at home, may be seen the many long pipes of peace which he enjoys smoking in his own happy manner, with his admiring internes, who enjoy the scene with a never failing memory. His library teems with medical journals and valuable scientific books, in which he often revels up to the small hours of the morning.

Dr. Fenger was the first surgeon, so far as the writer knows, who, when he wished to perform nephrectomy, cut down on the healthy kidney first, so that he would be sure of leaving one able to sustain life (1884).

Fenger was the first to do vaginal hysterectomy in Chicago (1882). He is master in brain and kidney surgery; in fact, his skill extends to all the realm of surgical operations. His master power of diagnosis multiplies his admirers. His skill in the microscope places him with few rivals. Perhaps no surgeon is sought in America for final diagnosis in disease more than Professor Fenger. Yet with all this magnificent recognition of skill, no one is more ready or willing to change his mind with the revelation of new facts. He is a progressive worker, a founder of great scientific truths, and yet the most unassuming of men.

Prof. Fenger was one of the first who taught us how to explore a brain, with an aspirating needle, in 1884, by introducing the needle through the cerebral meninges he could aspirate the venous ventricles without withdrawing it.

Every careful, progressive medical student is indebted to Fenger for the application of pathogenic anatomy in applied surgery. The fame of Fenger is the enduring monument to which we do obeisance in the name of industry, of labor and of modesty.

He has enriched the field of surgery by lessening pain, yet preserving organs; by revealing the steps in the progress of disease which aid in diagnosis. Fenger has made hosts of careful investigating students.

In his present teachings he is the soul of conservatism, and his clinics at Rush college are a veritable gold mine of facts.

Dr. Fenger was born in 1840, in Copenhagen, Denmark, and was graduated from the university of that place in 1867. After occupying various positions in hospitals, he became lecturer in pathologic anatomy in the University of Copenhagen. In 1876 he went to Egypt, where he entered the service of the Khedive. In 1877, on account of ill health, he was obliged to leave Egypt, whence he came to live in Chicago. As pathologic anatomy in Chicago twenty years ago was scarcely cultivated, Dr. Fenger had first to show its utility. This he did as none others before him. The progressive students quickly grasped the utility of his autopsic demonstrations and applied them in practice for twenty years. Many students annually have passed from Dr. Fenger's teachings to the field of practice, imbued with a spirit of investigation and made useful through his methods of instruction. The recent addition of Prof. Fenger to the Rush Medical Faculty is a factor of considerable importance to the profession, as Rush is the largest western medical college. It is significant as the tendency of the teacher is manifest in the pupil. It is gratifying to the profession that Dr. Christian Fenger is allowed to labor where his teachings will secure the widest appreciation. The soundness of his teachings and the greatness of his labors have long been recognized as invaluable to the medical profession.

The presence of a physician like Dr. Fenger in the midst of a great medical center is of inestimable value; first, because he is uncompromisingly conservative, is opposed to unnecessary operations, and acts as a powerful check on over-bold or unscrupulous surgeons; and secondly, he serves as an unfailing source of enthusiasm in ambitious young medical persons, for research, for investigation, for broader scientific knowledge—yes, and aids to thrust in the back grounds the grasping greed for gain.

Few men can use anatomy with such resourceful aids in diagnosis. He makes anatomy alive with pathogenic facts. In his clinic the dead skeleton becomes resurrected and clothed with new life, and glittering facts encircle about it like meteors around a sun.

Dr. Fenger has introduced into Chicago the best of European methods of study, practice and investigation. He has taught the analytic methods, the value of pathologic anatomy as applied to the field of surgery, the benefit of spending years in monographic study.

Dr. Fenger is a surgeon of unlimited resources. He plans his operation with definite objects in view. The plans must rest on the solid ground of Nature—pathologic anatomy. For five years he has persistently followed and perfected certain operations, as may be seen in his excellent labors and reports on the uterus and kidneys. Dr. Fenger began contributing to medical journals articles of great merit, in 1870. All along the succeeding thirty years may be noted a brilliant series of articles, each the result of vast labors and careful investigations. To illustrate the immense labor of these articles, one in 1872 contains the extensive report of 422 post mortems which he performed himself from September 1, 1871, to September 1, 1872.

Dr. Fenger is the grandest medical example to teach young physicians that the foundation of medical knowledge rests on industry, on research, on investigation of physical facts, and that nature will yield its treasure alone to labor. Professor N. S. Davis, Sr., says of Dr. Fenger: "A man of genuine erudition, very minutely posted in the department of surgical pathology, skillful in operative surgery, a teacher of high reputation in both, and an honorable, high-minded citizen." As Prof. Lyman says: "Dr. Fenger is the pioneer of modern surgical methods in Chicago. He is probably the most learned surgeon in this city, and is as modest as he is wise."

Professor Christian Fenger is the well recognized systematic instructor in pathologic anatomy in America. To his studious effort hundreds of students for a score of years owe their knowledge of this important subject. No field is richer in undiscovered facts than pathologic anatomy. In the general medical college nothing is more defective than its work in post mortems. In any autopsy twenty years ago Dr. Fenger was seen at his best. He had a peculiar power to hold on to the essential of the subject, to suggest to students the proper trend of the matter in hand, and to sum up the characteristics, features of the fatal illness as shown by the findings of the cadaver. His object was not to fit the autopsic findings to the written clinical history of the patient, but he expressed in a forcible manner the evident and manifest cause of death. He had a very striking characteristic of coming to conclusious analytically, slowly, step by step, until the student at the summation of the autopsy could not be induced to consider the cause of death any other than what Dr. Fenger pronounced it. All patholigic features of the organs were rapidly scanned, probable errors excluded as quickly as possible, and the chief pathologic characteristics summed up, for a final cause of death. In the midst of puzzling autopsic complications he was not easily turned aside by minor details, but held fast to the manifest pathologic anatomy until his diagnosis was reached. He was fearlessly honest as to what he insisted we knew as positive justifiable conclusions and what was only probable. Dr. Fenger's teachings have produced rational diagnosticians. Autopsic work, i. e., the power to discriminate normal from pathologic anatomy, is the most important factor in a college student's course.

The complicated affair seen in the abdomen by a student at an autopsy is apt to induce him to perform his first laparotomy with caution. In every department of medicine the student is expected to study and become proficient, but in autopsy work there seems to be an exteption. How many scores of young men and women graduate annually without having performed a post-mortem, and besides, many graduate without ever having seen a post-mortem carefully conducted by a competent physician. Such methods cannot produce good diagnosticians. The person who has never done any post-mortem work, and who has not carefully watched while others did it, never rise from his deficiency. He makes false uses of therapeutics. He is apt to overestimate the use of remedies.

As a colleague remarked recently in Dr. Fenger's clinic while he was making a difficult diagnosis, "Dr. Fenger is good on the home stretch." He studies his cases with the most minute care in every detail. His method of teaching is to present few patients, but to push the analysis of the diagnosis to the final end.

Dr. Fenger excelled in his macroscopic teachings at an autopsy. This practical work captured progressive students and riveted their attention to the value of rational diagnosis. He was at home in autopsic labor. He did his work so easy that it appeared automatic. He inspired a student with the idea of autopsic work alone made the real diagnostician and the trusted and safe physician. Any physician who graduated ten years ago and would now witness autopsies, could well see how difficult it would be to regain such lost opportunities. Cook County Hospital, where Dr. Fenger started the great work twenty years ago, is the ideal place in America to learn pathologic anatomy, which alone produces rational diagnosticians. Dr. Fenger's careful work in pathologic anatomy has taught the young medical student that public recognition of merit in medical knowledge to-day does not come from guessing, but from labor, late and early.

If a student will observe an autopsy carefully conducted for an hour once a week through his four years' college course, he will never regret it and his patients will be in much safer hands. It requires years to do anything well. In fact, we do well only what we do automatically.

Mentally, progressive physicians have already built a devoted monument of admiration to Dr. Christian Fenger, but in the unknown future a physical monument may rise. However that may be, he has built his own monument in this western continent. Fenger has been the ferment of scientific medicine in Chicago for a score of years. He has furnished incentive to the ambition of those whom he knew well—to those who knew him only by name—yes, and to those wao never heard of him. Like a Billroth or a Langenbeck, he perpetuates his memory in his assistants and students. For many years it has been his custom to give each Thursday a demonstration to a favored few, who have in turn become the center of other circles, and so on in ever widening spheres. The world is always proud of him who achieves succes by individual effort, by worthy action. Fenger has so marshalled his forces that he has become a great teacher among medical men, a surgeon whose opinions are sought, an operator of unlimited skill, to whom no operation is too difficult. Only a good man can be a good surgeon. He must be unflinchingly honest with himself, whence he will be with his patients.

His Saturday afternoon clinic is like a monograph on any subject which he takes up. The anatomy, pathology, and prognosis on the subjects which he exhausts in his clinic on any patient presented.

Should we name one of the great characteristics of Christian Fenger, it would be his uncompromising honesty as to operative action in surgery. He never loses his confidence in the experience of mankind. For his light of the future he does not discard the lamp of experience. Fenger was one of the first surgeons of this country who announced that appendicitis is a medical disease, not a surgical; and that 94 per cent. of patients recover without operation. To Fenger's opinion the profession is rapidly tending, and it acts as a bulwark against the unnecessary operations of bold and unscrupulous operators of less repute. Dr. Fenger's uncompromising honesty may easily be detected in one of the most instructive reports on general peritonitis following appendicitis, in which he operated on thirteen patients and eleven died. Few surgeons would dare make a report of 84 per cent mortality. Yet, it was a report of incalculable value to the younger surgeons.

Dr. Fenger is a pioneer and originator of many valuable surgical procedures. The characteristic of his surgery is thoroughness and perfection. All who have observed his surgery on the brain have naught but praise for its originality and thoroughness. He was a great pioneer in Chicago in lung surgery for abscess and gangrene. He was one of the first to remove an intramedullary tumor from the spinal cord, and a very few have performed the operation since, or at least up to 1894. He did much pioneer work on the strictures and valves of the ureters, as may be observed in his magnificent work on the ureters—a work which will stand the test of time. He did some excellent work on the prostrate gland to prevent tubercular process from entering the bladder. He demonstrated the ball and valve obstruction caused by gall-stones in the common duct. His careful work on pathologic anatomy of the appendix and its application to surgery is sufficient to entitle him to the distinction of a progressive surgeon. His operation for the hare lip has been well appreciated for its intrinsic value. In these days of widely disseminated education and surgical skill, it is seldom that one man towers above his fellows. But to Dr. Christian Fenger we must acknowledge the title of one of the most distinguished surgeons of the modern times.

NOTES ON URINALYSIS.

By J. H. Salisbury, A. M., M. D., and O. T. Roberg, M. D.

Continued from April CORPUSCLE.

The principal proteids besides albumin which occur in the urine are, serum globulin, albumose, hemoglobin, and mucin or nucleo-albumin.

Serum globulin occurs along with serum albumin and responds in the same way as albumin to the heat and nitric acid tests. It has practically the same clinical significance so that it is not usual to discriminate between these two substances. Globulin can be separated from albumin by the fact that it is precipitated by saturating the urine with magnesium sulphate which precipitates the globulin and leaves the albumin in solution. Instead of using magnesium sulphate, the urine can be half saturated with ammonium sulphate by mixing with an equal volume of a saturated solution of ammonium sulphate.

This precipitates the globulin and leaves the albumin in solution. The albumin can afterwards be tested for in the filtrate by the tests that have been described. The precipitate of globulin can be dissolved in water and coagulated by heat or nitric acid.

Albumose occurs under two forms, hetero-proteose or hetero-albumose, and deutero-proteose or albumose. Hetero-proteose is precipitated along with globulin by magnesium sulphate, deutero-proteose is not. Both deutero-proteose and hetero-proteose as well as albumin and globulin can be precipitated by saturating the urine with ammonium sulphate and boiling. Any proteid remaining in solution after this procedure is peptone. The albumoses are precipitated by nitric acid but the precipitate clears up on heating and returns on cooling. The albumoses as well as peptones give the biuret reaction. The test is performed as follows: The solution to be tested is rendered alkaline with potassium or sodium hydroxid and a drop of dilute solution of copper sulphate solution is added. Albumoses and peptones under these circumstances give a rose red color.

Albumin or globulin when treated in this way gives a violet color. If ammonia be used instead of potassium hydroxid the color with albnmin will be blue with peptone violet. If ammonium salts are present a large amount of fixed alkali must be added to bring out the violet color with albumin or the red with peptone. If too much copper solution is used the color produced will not be characteristic, but will be blue with albumin and violet with peptone. Allen recommends to add a drop of Fehling's solution instead of the copper sulphate solution. A very good way of performing the reaction is to float the urine carefully above Fehling's or Haines' solution. At the junction of the two liquids a rosy ring will appear if the urine contains albumose or peptone. Peptone occurs very rarely if at all in urine. The cases which have been recorded as peptonuria were probably cases of albumosuria. Peptone can be distinguished from other proteids by the fact that it remains in solution after the liquid has been saturated with ammonium sulphate and boiled. The filtrate after the separation of other proteids may be tested by the xanthoproteic or the biuret tests, a large excess of potossium or sodium hydroxid being added in the latter case.

Bile pigments may give the biuret reaction and may thus render the test for albumose or peptone inconclusive. This fallacy can be avoided by precipitating the proteid with a solution of sodium phosphotungstate, washing and dissolving in an alkaline solution (0.5% sodium hydroxid) and adding a drop of copper sulphate solution when a red color will become more manifest upon filtration. The pathologic significance of albumosuria and peptonuria is not certainly known. It is believed that peptones or albumoses are absorbed directly from the intestine in cases of intestinal ulceration and are excreted by the kidney.

Albumoses and peptones may be formed in suppuration and other diseases where fermentation might take place and so may give rise to albumosuria. The presence of albumose is said to be a precursor of nephritis. It frequently accompanies albumin in nephritis and other conditions in which albumin is found in the urine.

Mucin occurs in urine in solution and also in the coagulated condition as strings or clots of mucus. These clots in some cases are of considerable size and may occasion difficulty in voiding the urine. Mucin appears to be allied to the glucosides since it yields a sugar on boiling with dilute acids. There also occurs in urine a substance known as nucleo-albumin which yields no carbohydrate on boiling with acids but in other respects behaves like mucin. Mucin is soluble in water, in alkalies and in dilute mineral acids but not in the weaker organic acids like acetic or citric. Mucin is precipitated by acetic or citric acid and the precipitate is not soluble in excess. It is also precipitated by dilute mineral acids, but the precipitate dissolves in a stronger acid. Mucin gives the biuret reaction.

The appearance of mucin coagulated by nitric acid has been described above. The clinical significance of mucin in the urine lies in the fact that it is the product of the cells of the mucous membrane of the urinary tract and its amount serves as an index of the degree of irritation of this tract. A large amount is indicative of inflammation of the kidney, pelvis, bladder or urethra. It is found in many cases of albuminuria and may persist after albumin has disappeared.

Hemoglobin appears in urine either as an accompaniment of the blood corpuscles in hematuria or independently of the cellular elements, constituting the condition known as hemoglobinuria. Hemoglobin usually gives a marked color to the urine, varying from a slight reddish yellow to a deep crimson or sometimes a darker hue.

Two tests may be used to discover the presence of blood coloring matter in the urine.

Heller's test consists in precipitating the phosphates by means of potassium or sodium hydroxid and observing the color of the precipitate. This should be white in the absence of blood but if blood is present the precipitate is colored a bright red or reddish brown.

The guaiac test is performed as follows: A dilute tincture of guaiac (one part of the official tincture to four of alcohol) is mixed with an equal volume of turpentine which has been ozonized by exposure to the air and the mixture placed in a test-tube. To this an equal volume of urine is added. If no blood is present a white emulsion is formed but if the urine contains blood the mixture will be colored blue. Instead of ozonized turpentine a solution of hydrogen dioxide may be used.

Clinically it is necessary to distinguish hematuria from hemoglobinuria. Hemoglobinuria consists in the presence of the blood coloring matter only in the urine. very few, if any, blood corpuscles being discoverable by the microscope. Hematuria consists in the presence of both blood corpuscles and coloring matter. Hemoglobinuria is due to the excretion of the pigment of broken down blood corpuscles and may occur without any disease of the urinary organs. Hematuria is due to hemorrhage and indicates a lesion of the kidney or some other portion of the urinary tract.

Hemoglobinuria is due to the destruction of blood corpuscles by the action of some toxic substance, either a poison introduced from without, or a toxin produced by disease. After transfusion of blood the corpuscles of the foreign blood are in great measure destroyed and their coloring matter excreted. Potassium chlorate, hydrogen arsenide and sulphide, iodine, pyrogallic acid, naphthol, phenol, carbon monoxide and some other poisons produce the excretion of blood coloring matter usually in the form of methæmoglobin.

The toxins of many infectious diseases produce hæmoglobinuria. Among these may be mentioned scarlatina, variola, typhoid, yellow fever, malarial fever, in which it is said to be confined to cases caused by the æstivo-autumnal parasite, syphilis, jaundice, Raynaud's disease, are also sometimes associated with this condition. It it sometimes epidemic in the newborn. Hemoglobinuria sometimes occurs in an intermittent form known as paroxysmal hemoglobinuria. This is frequently due to syphilis.

(Correction. In the last CORPUSCLE, p. 322, the formula for Esbach's reagent is incorrectly stated by the omission of a cypher. It should read: Picric acid 10 Gm., pure citric acid 20 Gm , water 1000 c. c.)

AFFECTIONS OF THE KIDNEY IN RELATION TO PREGNANCY.*

BY J. CLARENCE WEBSTER, M. D., EDIN., F. R. C. P. E.

Professor of Obstetrics and Gynecology in Rush Medical College, Chicago.

CHANGES IN THE KIDNEYS DURING PREGNANCY.

For many years there has been much discussion as to the alterations occurring in the kidneys during pregnancy, and, at the present time, there is considerable difference of opinion as to the nature of these changes, their frequency, causation and significance. The literature of the subject is abundant in speculative inquiries, while records of trustworthy facts derived from careful and systematic observation are scanty. Indeed, though theories have multiplied, it is doubtful whether we are very much wiser than we were fifty years ago, for the latest and most favored views, originating among French workers, are only an elaborated expression of the opinion published by Virchow in 1848.

This authority then pointed out that, of all the organs in the female organism, the most frequent functional or structural alterations due to pregnancy were found in the kidneys. He regarded the cause mainly as connected with altered metabolism, changes being induced not only in the kidneys, but in the liver, spleen and other parts. In association with these alterations, he pointed out the frequency of albuminuria.

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*Read before the Chicago Medical Society.

In view of the time limits which the present occasion demands it is impossible to do more than present a summary of the main lines of investigation along which workers have moved in their efforts to throw light on a difficult subject.

That the kidney becomes somwewhat hypertrophied as a result of pregnancy all are agreed, though the nature of the enlargement and range of variations are not at all definitely known. The quantity of urine is increased and it is of a lower specific gravity.

Sugar is found in a considerable number of cases of pregnancy, and more frequently after delivery, but this is only milk-sugar absorbed from the breasts, not true glucose. The latter is no more frequent in pregnancy than in the non-pregnant state.

Peptones are occasionally found in pregnancy; by many being thought to indicate death of the fetus, though there is no proof whatever of this. They are very frequent after the first three or four days of the puerperium, when they are derived from the involuting uterus.

With regard to occurrence of albumin in the urine and its significance, there is an amazing difference of opinion. Its frequency has been variously estimated by different workers.

The following statistics are given by different German authorities: Meyer, in 76 parturient women found albumin in 40.78 per cent.; Litzmann, in 100 parturient women found albumin in 43.7 per cent.; Löhlein, also in 100 parturient women found albumin in 37 per cent.; Flaischen, in 537 parturient women found albumin in 16.9 per cent., and Winckel, in 367 parturient women found albumin in 19.4 per cent

These percentages are noticeably higher than those given by leading French obstetricians. Thus, Pinard states that out of 1249 parturient women in the Baudelocque Clinic in 1890, only 73 cases of albuminura—6 per cent.—occurred; of these slightly less than 3 per cent. were associated with pregnancy, the rest with labor.

So far as may be gathered from more recent observations, it may be stated that serum-albuminuria occurs in about 2 per cent. of all pregnant women who are healthy at the beginning of pregnancy. The process of labor causes albuminuria in a still larger percentage of cases. Aufrecht found it was produced in 18 out of 32 women examined. Ingersley in 50 out of 153 cases of labor. It is most frequent in women during the first pregnancy, especially in those who are no longer young or in those who are very young. Of all cases it is believed to be most associated with the presence of more than one fetus *in utero.* It occurs mainly in advanced pregnancy, only rarely in the early months.

What is the significance and explanation of this albuminuria of the pregnancy? Is it, as some hold, a physiologic process of no importance, or is it to be regarded as many authorities consider it, as the result of pathologic changes induced in the cortical portions of the kidneys? In favor of the former view may be adduced the cases of healthy men and non-pregnant women in whom a temporary albuminuria may be caused by various factors, e. g., changes in temperature, food, exercise, etc. The investigations of the late Grainger Stewart undoubtedly appear to justify the view that there may be an albuminuria, which is to be regarded a physiologic peculiarity and not the indication of a pathologic process. *A priori*, then, it must be conceded that a like explanation may suffice for some cases of the albuminuria in pregnancy.

Regarding the view that a morbid process in the cortices of the kidneys is the essential cause the following facts may be stated: In very many cases of albuminuria other signs of renal diseases may be present. Thus edema may be frequently met with. Winckel's statistics may be noted: In 1874, in 319 pregnant women edema occurred in 20 per cent; in 1876, in 1058 pregnant and parturient women it occurred in 4.35 per cent: in 1877, in 1091 pregnant and parturient women it occurred in 6.96 per cent., and in 1878, in 1050 pregnant and parturient women it occurred in 5.52 per cent. Levden is of the opinion that anasarca is much more common than albumihuria and that when they co-existed the edema has appeared first. Then, again, there is often a deficiency in the quantity of urine passed and in the total solids excreted. But most important of all is the occurrence in the urine of various formed elements, viz: casts and blood-corpuscles. Fisher, who has given much attention to the subject points out that these are mostly found in the last weeks of pregnancy, when they often show progressive increase. Hyaline casts are frequent, while granular and epithelial ones and broken down epithelium may also occur. Red blood-corpuscles and leucocytes may be passed continuously or at intervals.

Now, as to the relationship between the above findings of physical examination on the living subject and those obtained by post-mortem investigation it is impossible to speak with absolute certainty. The great majority of such patients do not die and, comparatively, only a small number of post-mortem studies have been made. There can, however, be no doubt that sufficient work has been done to establish the probability that renal cortical lesions generally occur, though with considerable range of variation.

The most frequent changes found are as follows: The kidneys are enlarged and less firm than normal; the cortices are swollen, anemic and of pale gray color; cloudy swelling and granular changes are found in the cells of the tubules, and, often, fatty degeneration. In a small number of cases it is certain that the kidneys not recover from this condition after labor, but may pass into a permanent, true parenchymatous nephritis. In the majority of instances, however, there is every reason to believe that they may be restored to their normal condition in a short time. Olshausen has described an interesting case in which the urine contained abundant albumin, casts and blood-corpuscles at the time of labor, eclamptic phenomena being also present. The patient died five days after delivery and at the post-mortem examination no changes whatever were found in the kidneys.

Of extreme interest is the consideration of the etiology of the albuminuria and renal changes above described. The subject is an extremely difficult one and has been the occasion of much speculation and much polemical writing. Only a brief reference to the most important views is here possible.

Compression of the ureters.—Halbertsma of Utrecht, from his studies of eclampsia, believes that increased intra-abdominal pressure due to the pregnant uterus may by interference with the functions of the ureters, lead to alterations in the renal structure. He thinks that the special tendency to these alterations in primiparæ, hydramnios multiple gestation, contracted pelvis—in all of which the pressure is increased—strengthens his view. Ries, holding somewhat similar views, believes that in some cases compression of the ureters by the presenting part of the fetus is the most important factor. These views have not been accepted by most authorities. Halbertsma's statement that dilatation of the uteters is frequent in such cases has not been corroborated. Olshausen found dilatation only seven times in thirty-seven post-mortems.

For my own part, I believe that too little attention has been given to the opinions of Halbertsma and Ries.

While it is true that the anatomic relationships of the ureters are such that they are generally protected from the pressure of the pregnant uterus or its contents at any special point, the possibility of an abnormal pressure over a considerable extent of the ureters in certain cases cannot be denied. Though the projecting vertebral bodies are the main safeguard from pressure on the ureters, they can not entirely protect it. My frozen sections and casts of pregnant woment show that the enlarged uterus moulds itself accurately along the spine and on each side of it. At the brim this moulding is particularly well shown. In conditions of tense abdominal wall, such as is found in young or old primiparæ; or of abnormally large uterus, as in hydramnios or multiple pregnancy, it is very evident that the general pressure on the ureters must be increased. In the late weeks of pregnancy, as is well-known, the fetal head lies in the pelvic cavity in primiparæ, and if the pelvis be justominor or funnelshaped in type, or the head be abnormally ossified or enlarged, the ureters can scarcely escape being unduly oompressed against the pelvic wall. Even though in these various conditions there may not be a local interference with the flow through the ureters, there may be produced a paresis of their walls, as Halbertsma first suggested, leading to a marked weakening of their peristalic action.

The earlier critics of this worker pointed out that the pressure theory could not explain the cases in which renal disturbances developed in the puerperium. My recent studies of the puerperal woman by means of frozen sections supply a very evident explanation. I have shown that the post-partum uterus in its retracted and contracted condition fills the greater part of the normal pelvic cavity to such an extent as to form a ball plug compressing all extrauterine tissues firmly against the pelvic wall, interfering considerably with the circulation of blood through them. The ureters share in this compression: This condition of affairs lasts for three or four days, during which period renal disturbances mostly occur. The postpartum uterus varies somewhat in size and, therefore, if it be rather larger than normal or if the pelvis be justo-minor or funnel-shape in type, greater compression is produced. Ries, Halbertsma and others have shown that pelvic inflammatory exudates may cause compression of the ureters, and consequent renal disturbance in the puerperium. It is interesting to note, in this connection, that large fibroid and ovarian tumors, especially the former, are not infrequently associated with changes in the urine, kidneys and ureters similar to those found in pregnancy; and in some cases the renal function may be completely destroyed.

Finally, it is interesting to note certain experiments on animals: Aufrecht ligated a ureter in a dog and killed the animal three days later. The corresponding kidney was much swollen, its pelvis along with the upper part of the ureter distended. The cortical tubules of the kidney were damaged, being somewhat dilated, and containing abundant hyaline—fibrinous—casts, their epithelium showing granular and fatty changes.

Apart from compression of the ureters it may be that the kidneys themselves are so affected by certain degrees of increased intra-abdominal pressure as to undergo degeneration; or, it may be, that in the same manner the renal circulation is interfered with. Compression of the renal arteries or interference with the flow of blood in the veins is sufficient to induce albuminuria and degeneration in the kidneys if continued long enough.

Influence of the Products of Metabolism.—Virchow, in 1848, stated that disturbances in the kidneys during pregnancy were mainly due to the influence of altered body metabolism, and he pointed out the frequency with which the renal changes are accompanied by corresponding conditions in the liver. During the past fifty years different theories have been advanced to explain the nature of the alterations induced by the metabolic processes in pregnancy. At the present time the majority of authors hold to this theory in a general way, though there is very great divergence of opinion as to its actual application.

In pregnancy the increase in maternal metabolic activity is evident. This means a greater quantity of excrementitious matter to be eliminated. As the ovum develops fetal metabolism becomes a more and more important factor. Fetal waste products almost entirely enter the maternal blood by transmission through the walls of the villi from the fetal circulation. An extra burden is therefore thrown upon the maternal kidneys, and if they cannot respond to the increased demand on their activity, they are apt to suffer. The waste products may exert a direct poisonous action on the cells of the tubules. The changes are believed to be similar to those found in such conditions as ptomain poisoning and acute yellow atrophy where the destruction of the kidney tissue may be very rapid.

The influence of the skin, lungs, liver and intestines aid in getting rid of the waste products of metabolism, and it is evident that interference with their functions will throw greater burdens on the kidneys. It is in pregnancy especially that these functions are apt to be interfered with. In most civilized countries a large number of pregnant women have a prejudice against cleansing the skin of the body. The production of albuminuria in a healthy dog by varnishing its skin is a well-known experiment. Then the tendency to irregularity in the digestive tract and to constipation in pregnant women is a very common one. Clinically, it is very easy to prove, in the albuminuria of pregnancy, that promotion of free action of skin or bowels, or of both combined, may lead rapidly to a diminution in the quantity of albumin in the urine.

With regard to the influence of the fetal waste products it has been noted in cases of albuminuria that death of the fetus may lead to a rapid diminution or disappearance of the albuminuria, and this is believed to be due to the cessation in the transmission of the waste products from the fetus to the maternal blood. There is much speculation as to the nature of the waste products which exert the destructive influence. Various subjects are mentioned, e. g., leucomains and ptomains formed in the bowel and reabsorbed when the bowel action is faulty; also creatin, creatinin, inorganic salts of potash, various alkaloidal products of digestion, etc.

The extent to which the kidneys may be affected depends, therefore, on a variety of factors. In the majority of cases in which they are affected, no permanent damage results nor do serious complications arise. In a certain number of cases serious renal diseases may be induced, and in a considerable number of cases where the disproportion between circulating poisonous waste products and rectal excretory action becomes too great, the serious phenomena known as eclampsia supervene, the woman's life being greatly endangered.

As might be expected, a number of workers have advanced the view that the main factor in producing the toxemia of pregnancy is microbial infection. Some have found germs in the blood, some in the kidneys, others in the placenta In some cases cultures injected into animals produced general toxemia and changes in the kidneys resembling those found in the altered kidney of pregnancy. Other workers have obtained negative results.

While it is impossible, at the present time, to postulate any well-ascertained results regarding the relationship of microorganisms to the toxema of pregnancy, in view of such experiments as those of Doleris and Poney, Blanc, Favre, Gerdes and others, and in the light of Adami's recent work on subinfection, it cannot be denied that in some cases of pregnancy-toxemia, the important agent may be some form of microbe, and that in their effort to destroy and remove the organisms, the kidneys may be so affected as to undergo the pathologic changes to which I have already referred, with consequent accompanying alterations in the urinary secretion.

Finally, after reviewing the most important theories advanced by those who have worked in this difficult sphere, it must be admitted ohat much is to be said in favor of each. Indeed, it is highly probable that something of the truth is contained in all of them, that in most cases no single factor is causal, but rather a combination of various factors, these varying greatly in different instances. The most important of these is undoubtedly the toxic element. Only from such a standpoint is it possible to group into an intelligent synthesis the heterogeneous clinical phenomena and physical changes found in the abnormal condition of pregnancy under consideration.

Nephritis.—Where true nephritis exists before or begins in pregnancy, the disease, as a rule, is a more serious matter than in the non-pregnant state and the prognosis is unfavorable. In the case of chronic nephritis, an acute exacerbation is usually induced. The patient may die from kidney failure, and uremia is very apt to occur. Only in a small percentage of cases are the phenomena of eclampsia noted, as has been pointed out by Fehling and Leyfert.

As regards the influence on the course of pregnancy the tendency to premature emptying of the uterus is to be particularly noted. According to P. Muller it occurs in more than 40 per cent of cases. It is attributed to various causes, viz.: hemorrhages into the placenta, causing infarcts and destruction of portions of the chorionic villi, or separation of the placenta. The fetus may die as a result of the accumulation of toxic material in the system, and this is an important cause of the premature expulsion. The fetal mortality is very high. Hofmeier noted that the fetus died in twenty out of twenty-three cases of nephritis. Braun has estimated the mortality at 80 per cent.

Treatment.—The treatment of a pregnant woman with symptoms pointing to disturbed renal functions is to be carried out on the lines followed in the non-pregnant state. The strictest watchfulness on the part of the physician is necessary. With regard to the question of allowing the pregnancy to continue, it is difficult to decide. There are, however, certain indications which point imperfectively to the induction of premature delivery, in the interests of the mother, viz.: visual disturbances, and continued headache, pulmonary or other marked edema, marked cardiac disturbance, frequent nose-bleedings, continued increase in the casts and albumin in the urine, uremia. In a number of cases the woman may respond to treatment so satisfactorily as to go to full term and be delivered of a healthy child.

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DISCUSSION.

Dr. James B. Herrick said, with reference to the patchy character of the renal changes, that it seems to him that this offers a possible explanation in some cases of so-called functional albuminuria. It is difficult to explain why in certain cases patients have albumin in the urine at a certain hour of the day, after a little exertion, after a particular kind of meal, etc., and yet it is conceivable that in some of these cases only very small areas of the kidney are diseased. These areas are not extensive enough to produce the cardiovascular changes that accompany nephritis.

As to the paper of Dr. Webster, it seems more probable that toxemia has more to do with the production of albuminuria of pregnancy than has pressure, and the facts cited by Dr. Webster lend color to that theory. The carelessness regarding excretion through the skin in pregnancy; the very commonly-met-with constipation; the increased and altered metabolism; the very commonly-met-with digestive disturbances of the stomach and of the intestines, and the fact that the pregnant mother has to eliminate for the child as well as for herself., all lend color to the toxemic theory and make it more attractive than the pressure theory.

Referring to the treatment, Dr. Herrick confessed that the more of these patients he sees, the more it is impressed on him that it is a safer proceedure to empty the uterus early. Senator's definition of functional albuminuria was given. On the slightest increase in the albuminuria, in spite of treatment. on the indication of uremic manifestations, whether they be in the form of a persistent headache, amaurosis, nausea and vomiting, or what seems to him a valuable and significant symtom, a severe epigastric pain, even without nausea and vomiting, on the appearance of edema of the face, which can not be ascribed to pressure, he believes it is always a safer plan to empty the uterus. While this may not be in accord with the teachings of obstetricians, yet he has never regretted emptying the uterus early.

Speaking of the paper of Dr. Davis and of the etiology of nephritis, he believes the intestinal tract is frequently at fault. This fits in with the toxemic theory of the origin of many cases of nephritis. The diet depends not so much on the percentage of albumin that may be in the food as on the way in which the alimentary tract handles the food. In other words, the diet should depend more on the condition of the alimentary tract than on the food itself.

Referring to the intermittent administration of milk as a diet in chronic diffuse nephritis, he spoke of an acquired tolerance of the kidneys for certain kinds of food. We have a patient, for instance, with chronic nephritis, who is constantly passing albumin; on feeding him certain kinds of food the amount of albumin increases. On the other hand, put the patient to bed, give him a very restricted diet—a pure milk diet—for a time, and the amount of albumin begins to diminish. The kidney is having a rest, and after a rest of three or four, or possibly six or eight weeks the patient tolerates articles of food that he could not before tolerate. He can now be given a mixed diet, with perhaps a liberal amount of meat, and the percentage of albumin will not be increased in a way that it would formerly. This, he believes fits in exactly with Dr. Davis' idea of the intermittent administration of milk. The same principle might be applied to the treatment of diseases of other organs.

Dr. Davis in closing the discussion, said that his attention had been drawn to the effect of the condition of the alimentary tract in the production of albuminuria and the appearance of tube casts in the urine, because of the frequent finding of either tube casts alone, or albuminuria alone, or the two combined, in all sorts of maladies in the more acute stages. However, this condition is usually transitory. There is not really produced a genuine nephritis in these cases, but simply a moderately disturbed functional activity of the kidney, and yet enough to produce these symptoms. He has seen them repeatedly in connection with digestive disorders, and in connection with simple and chronic bronchitis, as well as other maladies observed in hospital practice. A study of the records of hospital laboratories would reveal the fact that in a large proportion of the patients who enter hospitals traces of albumin, or tube casts, are found, which disappear—at once, and usually permanently—from the urine as soon as the intestinal tract is thoroughly emptied and the patients are placed on a simple diet that is well assimilated and well digested by the stomach and bowels. These facts have impressed on him the relationship of the condition of the alimentary tract and digestion to the production of nephritis. It is not the only cause, but simply one of the causal factors of renal troubles.—*Jour. A. M. A.*

The Corpuscle

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MEMBERSHIP IN THE ALUMNI ASSOCIATION OF RUSH MEDICAL COLLEGE is obtainable at any time by graduates of the College, providing they are in good standing in the profession, and shall pay the annual dues, $1.50. This fee includes a subscription to The CORPUSCLE for the current year. This journal is the official organ of the Association.

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Those having in charge the arrangements for Commencement week in June are making unusual efforts to make the program interesting and beneficial. There will be clinics, a reception, a dinner and a theatre party for the visiting alumni, besides other entertainments. It is to be hoped that all those alumni who can possibly do so will be here in Chicago during the week beginning June 18. This year the exercises come at a time that the annual sessions of the medical societies will be over, so an unusually large attendance may be expected.

There are many things which contribute to make this Commencement of extraordinary interest to Rush alumni. During the past year the quarterly system has been inaugurated, the curriculum has been so arranged that the courses are largely elective, and there have been some important faculty changes since the association last met. Upon another page of The Corpuscle will be found the preliminary announcement of the secretary. We trust that every loyal alumnus will be with us in June.

Said the hearse-horse to the coffin,
"What the devil have you there?
I may trot from court to square;
Yet it neither swears nor groans,
When I jolt it over stones."
Said the coffin to the hearse-horse,
"Bones."

Said the hearse-horse to the coffin,
"What the devil have you there?
With that purple frozen stare?
Where the devil has it been
To get that shadow grin?"
Said the coffin to the hearse-horse,
"Skin."

Said the hearse-horse to the coffin,
"What the devil have you there?
It has fingers, it has hair;
Yet it neither kicks nor squirms
At the undertaker's terms."
Said the coffin to the hearse-horse,
"Worms."

—Bliss Carmen.

NOTICE TO THE UNDERGRADUATE SUBSCRIBERS.

A number of students who subscribed for the Corpuscle during the winter and spring quarters have not yet paid to our subscription manager, H. C. Bently, '02, the dollar due on their subscriptions—all who have not yet done so are requested to hand the dollar to Mr. Bentley or place it, enclosed with subscribers name, in one of the Corpuscle boxes. Receipts will be promptly mailed.

DISEASES OF THE KIDNEY, AMENABLE TO SURGICAL TREATMENT.*

By Dr. Christian Fenger, Chicago.

Professor of Clinical Surgery, Rush Medical College.

Before entering upon the consideration of the topic assigned, I desire to acknowledge my appreciation of the compliment paid me in inviting me to speak before this Association, and to express the pleasure that it gives to appear before you on this occasion.

ORIGIN AND GROWTH OF SURGERY OF THE KIDNEY.

The surgery of the kidney began thirty years ago, when on August 2nd, 1869, Gustav Simon, of Heidelberg, removed a kidney by the lumbar method for an irreparable ureteral fistula. This operation demonstrated that a man could live in perfect health, if not in perfect security, with only one kidney.

This new field of surgery developed rapidly, as may be seen from a review of the literature on this subject. If we take, for example, the Virchow-Hirsch Jahresbericht, and count the number of papers on surgery of the kidney therein noted, the count will not include all the papers written on this subject, but will give a relatively correct idea of the growth of the literature.

In the first decade, from 1869 to 1879, less than twenty articles appeared; in the next decade, from 1879 to 1889, about three hundred, or an average of thirty papers a year; while in the third decade, from 1889 to 1899, about eight hundred papers, or an average of eighty a year, appeared.

The latest field in surgery, that of surgery of the ureter, is, as might be expected, inseparably connected with the surgery of the kidney, and of the uro-genital organs.

The surgery of the ureter is represented in the literature during the last decade by ninety papers, eighty-seven of which appeared between 1894 and 1899. Thus the surgery of the ureter is only about five years old in its recent development.

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*Read before the Ontario Medical Association, June 14th, 1899.

STAGES OF DEVELOPMENT OF SURGERY OF THE KIDNEY.

Period of Radicalism: Nephrectomy, or nephrotomy through diseased kidney tissue.—The first decade of kidney surgery might be termed the period of nephrectomy or radical surgery, during which the loss of one kidney was not considered so much as was the speedy cure of the patient. Nephrotomy and nephrectomy were performed, indiscriminately in suppurating kidneys with or without stone, nephrectomy in calculous kidneys without suppuration, and even for floating kidney with healthy secreting tissue, as done by Martin of Berlin in 1878.

Period of Conservatism: Operation through healthy kidney tissue (Morris).—At the beginning of the second decade the first steps in the direction of conservatism were taken, and, instead of nephrectomy, less radical operations were made to remedy the disease without sacrifice of the "noble tissue of the kidney," as Tuffier calls it. In 1881 Hahn made nephropexy or nephrorrhaphy for floating kidney, thus saving the healthy organ which previously would have been removed. The most important step, however, and one whose consequences have been most far reaching, covering the entire field of kidney surgery, we owe to Henry Morris, of London, who, on February 11th, 1880, had the courage to operate through healthy kidney tissue, and remove an oxalate of lime stone from an undistended, healthy-looking kidney, by an incision through the renal parenchyma. No operator, prior to this time, had dared to encounter the hemorrhage which follows incision through healthy kidney substance. Thus stones had been removed only from suppurating and often distended kidneys, where the interstitial nephritis made the incision almost bloodless. From this important operation of Morris dates the possibility of the development of conservatism which is pressing forward, fighting its way toward the goal of renal surgery, which is the preservation for the patient of all kidney tissue available for secretion. Morris' operation has made it possible to save the kidney from the destructive influence of the stone, namely, suppuration and dilatation, which are finally bound to occur. I consider Morris' operation on healthy kidney tissue, of far greater importance, however, because, in addition to allowing resection of the kidney, it paved the way for the exploratory incision which now, in less than twenty years, has grown to be an operation of far-reaching diagnostic, as well as therapeutic value. In the third decade the latest step toward conservatism was made; namely, the surgery of the ureter. This somewhat limited field of surgery has, with the exception of ureterectomy for tuberculosis and septic pyelitis, no other object than to save the secreting kidney tissue above from disturbances from below, due to retention or infection. In a review of this nature, the time at my disposal will permit me to indicate only a few points in urinalysis and the present status of treatment of surgical diseases of the kidney. Tuffier's experiments on dogs have demonstrated that the minimum amount of healthy kidney tissue necessary for life, is one to one and a half grams for each kilogram of body weight. An adult man should have three hundred grams of kidney tissue; if his weight is seventy-five kilograms, or one hundred and fifty pounds, he needs only seventy-five to one hundred and twelve grams of the three hundred grams of kidney tissue; that is, he can spare two-thirds or three-fourths of the normal amount of kidney tissue before crossing the danger line, and he may live in perfect or relative health for years during the destruction of the kidneys until the last fourth is reached, when sudden uremia sets in. When the amount of kidney tissue approaches the lowest limit, the quantity of urea diminishes, although the amount of urine may still be normal. It is, therefore, a matter of vital necessity to examine the urine for urea before operating. Compensatory hypertrophy or regeneration of kidney tissue of a healthy kidney, when its fellow has been removed or destroyed by disease, has been studied experimentally by Tuffier. After extirpation of one kidney he removed, by successive partial operations, portions of the remaining kidney aggregating in all the weight of the kidney first removed. From this he concludes that as a quantity of kidney tissue equal to both kidneys was removed without disturbing the health of the animal, at least the necessary one-fourth of the kidney tissue must have been formed by regeneration or compensatory hypertrophy.

(To be continued in June CORPUSCLE.)

ALUMNI NOTES.

'94. Dr. J. C. Williams, 169 Webster Ave., Chicago, has opened offices in the Plaza, North Ave. and Clark street. He will still maintain his Webster Ave. location. The Doctor has recently been transferred from the department of pathology to that of chest, nose and throat diseases, with the same rank, an associateship.

'93. Dr. Rudolph W. Holmes, who recently had an operation for appendicitis, left Chicago May 4. He will spend some weeks on Long Island, and sail for Europe, for a year's study, early in June.

'93. The following is a clipping from the *Chronicle*, concerning the wedding of Dr. E. J. Senn.

An out-of-town wedding of much interest was that of Miss Alys Laroussini, a New Orleans belle, to Dr. Emanuel J. Senn, son of Dr. and Mrs. Nicholas Senn of this city, which was celebrated Tuesday in New Orleans at the home of the bride's parents, Mr. and Mrs. Urbain Laroussini. The bride has been a reigning social favorite of New Orleans ever since her coming out and is far famed for her beauty. It was while visiting in this city last winter that she met the young physician whose bride she became Tuesday. At the court of Nereus in 1896 she wore the crown and scepter and carnival honors have been showered upon her on many occasions. Her only wedding attendant was her sister, Miss Olga Laroussini, and William N. Senn, the groom's brother, was best man. The bridal toilet was an elaborate creation of peau de soie and real lace. It was cut decollete, with very long sleeves. A circlet of diamonds was worn around the throat and many other jewels, gifts of the bridegroom and his family, were worn. The veil was of illusion fastened to the hair with an aigrette of lillies of the valley. Dr. and Mrs. Senn are now in New York and will return to this city to be at home after June 1 at 298 Schiller street.

'84. Dr. Samuel H. Esch, elder brother of Congressman John J. Esch, died at his home in Sparta, Wis., recently. He had an operation performed for abscess of the kidneys in Chicago last winter and had been failing ever since. A sad feature of his demise was the confinement of his wife, who gave birth to a girl just fifteen minutes before his death. The doctor lived long enough to recognize and smile at the baby.

'82. Dr. M. L. Moore, of Los Angeles, Cal., called at the college the other day on his way home from a visit in Indiana.

'66. George A. Wilson, M. D., died at his home in Peoria, Ill., April 7.

'64. A. J. Bacon, M. D., died at his home in Gardina, Cal., March 30.

'64. J. N. O'Brien, M. D., Milwaukee, Wis., died April 22, aged 62 years. He was a native a Pennsylvania, and received his early education there, in the state university; he also studied at the University of Notre Dame. He was a member of the American Medical Association and of the Wisconsin State Medical Association and of the Wisconsin State Medical Association.

'47. Dr. Edward A. Guilbert, an old and respected citizen of Dubuque, Iowa, and one of the oldest graduates of Rush Medical College, passed away at his home in Dubuque after an illness of three months, from old age and a complication of diseases. Dr. Guielbert stood at the head of his branch of the medical profession in Iowa. He was born in Watertown, Jefferson county, N. Y., June 12, 1826. In 1837 his father's family removed to Chicago. His professional studies were begun in 4843, and after a four years' course he graduated at Rush Medical College, and for several years was the confidential student in the office of the late eminent Prof. Daniel Brainard. He practiced medicine first at Ottawa and afterwards at Waukegan, Ill. He then removed to Elgin, and in 1857 he located in Dubuque, Iowa.

During 1862 to 1865 he discharged the responsible duties of surgeon of the Board of enrollment in the third congressional district. He encouraged the enlistments for the volunteer service for the civil war, and was chosen captain of Co. A. of the Forty-sixth Iowa Vol. infantry, with which company he served in the field in western Tennessee for five months.

He established in 1876 at Dubuque the Northwestern Sanitarium.

Dr. Guilbert was a thirty-three degree mason, and until his death was one of three men in Iowa who had attained this distinction. He was elected Grand Master of the lodge of Iowa, and acted in that capacity for nearly four years. He was a voluminus writer on masonic literature, and held nearly every position in the gift of the masonic fraternity of Iowa. He also aspired to political honors, and in 1875 proposed as a candidate for governor of Iowa on the ante-monopoly ticket.

He had practiced his profession in Dubuque for nearly forty-five years. He was a man of positive character and when he espoused a cause he labored for it with all his energy. Nothing could dissuade him from his purpose when pursuaded that he was right. He hated sham and hypocracy, and denounced them in every form. As an orator he was eloquent and well versed on all the leading topics of the day. His record as a citizen, soldier, and public official is unblemished, and he passed to his reward respectee of his fellow citizens. The funeral was in charge of the masonic Grand Lodge of Iowa, and the Hyde Clerk Post, G. A. R., of which he was a charter member. His wife, a son and daughter survive him. His last resting place is in Linwood cemetery near Dubuque.

Such is the life work of one of our noblest characters in the alumni ranks. May his life be an example for us to follow and in death to receive the laudits of a world we have learned to honor.

PRELIMINARY ANNOUNCEMENT OF THE EXERCISES FOR THE ALUMNI ASSOCIATION, FROM WEDNESDAY JUNE 20TH, TO FRIDAY JUNE 22ND, 1900.

Wednesday will be devoted to clinics. Among those who will hold special clinics during the week are Prof. Senn, a Surgical Clinic in the ampitheatre of the college, Prof. Bevan a Surgical Clinic in the Presbyterian hospital, Prof. Billings a Medical Clinic, Prof Webster a Gynecological Clinic, Prof. Brower a clinic at Cook County Hospital on Mental and Nervous Diseases. On Thursday the Annual Scientific Meeting of the Association will occur and papers are to be presented by the following:

Dr. B. B. Griffith, Springfield, Ill.
Dr. S. G. West, Chicago, Ill.

Dr. E. S. Detwiler, La Grange, Ill.
Dr. P. Dougherty, Junction City, Kan.
Dr. C. T. Drennen, Hot Springs, Ark.

Immediately following this Scientific Meeting will occur the Annual Business Meeting of the Alumni. Thursday noon a luncheon will be given to the visiting Alumni at the Laboratory building and at this meeting a number of the Faculty will be present; this was an enjoyable feature of the Alumni meetings a few years ago which will be revived this year. The afternoon will be devoted to clinics. In the evening there will be a Theatre Party. The entertainment selected will be given by the *Castle Square Opera Company*, at Studebaker Hall. The opera to be presented will be announced later on. Friday, special clinics and demonstrations will be held in the morning. In the afternoon the graduating exercises will occur. The address will be delivered by W. W. Keen, M. D. The annual reception of Philadelphia, Pa., and dinner of the Faculty and Alumni will be held at the Auditorium Hotel at 7 P. M. A full program will be mailed to the alumni about June first and will be published in the June number of the CORPUSCLE. We make this preliminary announcement in order that the Alumni may make their plans to be present.

The annual dues of the Alumni Association, $150 are now payable for year 1900–1. It is hoped those of the Alumni under whose eyes they may fall will send the amount to the secretary without delay. The dues include the subscription of the CORPUSCLE for the current year.

JOHN EDWIN RHODES, Secretary and Treasurer.

COLLEGE NEWS.

The college was closed on May 1, Dewey Day.

B. L. Stenson now occupies the position of night clerk at the Presbyterian Hospital.

C. F. Read has gone home suffering with the "mumps."

W. H. Whitsitt and H. N. Morrow now room at 169 Ashland Boulevard.

Professor A. I. Bouffleur operated at Roberts, Ill. the last day in April.

The final examination in Splanchnology was held May 2.

David Storie has so far recovered from his illness that he has left the Presbyterian Hospital and will spend a month on the Pacific coast before entering college.

The college photographer, R. E. Fox, is doing a brisk business in the physical diagnosis room.

Dr. Gill is now delivering the lectures in Materia Medica IV–4.

W. H. Sheldon spent several weeks at his home in Madison, Wis., during the last of April, and the first of May.

R. A. Bachman has been confined to his room by a severe attack of follicular tonsiletis.

Professors Bevan, Webster, Haines, Patton, Hyde, Montgomery, Brower, Cotton, Billings, Favill and Dodson attended the meetings of the American Medical Association held in Washington, D. C. the first of this month. Dean Dodson will visit several southern medical colleges before returning to Chicago. Professor Patton will visit the eastern medical colleges, returning to Chicago June 10.

Prof. Ingals reported two cases of aneurism of the aorta at the last meeting of the Chicago Medical Society.

The Rush Y. M. C. A. have elected the following officers for the coming year: President, S. S. Fuller, '02; Secretary, O. U. Chenowath '01; Treasurer, J. H. Carnelley '02. The Association now numbers seventy members. Six delegates will be sent to the Training Conference at Lake Geneva in June.

On April 18 Dr. Howard Ricketts and Miss Myra E. Tubbs, of Kirkwood, Ill., were united in marriage. On another page is the account of Dr. E. J, Senn's marriage.

T. H. Barlow '02 was called to his home in Drayton, N. D., to the deathbed of his father. Mr. Barlow will not return to college this quarter.

At the annual meeting of the Ladies' Aid Society of the Presbyterian Hospital, a plan for building a maternity was discussed. The Sum of $40,000 was conditionally promised for this purpose. When completed the hospital will cost $100,000.

Prof. Hektoen goes to the meeting of the American Medical Association at Atlantic City as chairman of the newly started Pathological section. The name of Professor Hektoen has been suggested by some newspapers in connection with the chair of pathology in the University of Christinnia.

At the last meeting of the Rush Medical Society the topic of the debate was, "Should all Cases of Appendicitis be Operated Upon as Soon as the Diagnosis is Made?" Ralph Graham, '00, and G. A. Ernst, '01, supported the affirmative, while B. F. Simon and F. B. Boyd, '00, took the negative. The judges were Prof. A. J. Bouffleur, Drs. H. S. Wells and S. R. Slaymaker.

An examination in Junior medicine is announced for the middle of the month.

On May 1 S. F. Russel, '01, and Miss A. L. Wilson were married at Macomb, Ill.

The article by F. M. Wood, '01, in last month's issue was suggested and partially prepared from a chart formerly made out by Mr. C. R. Green, '00, and the classification appended was mainly worked out by Mr. Gillam, '00. Mr. Wood desired to acknowledge the assistance of these gentlemen in the last issue, but it was unintentionally omitted.

The Sophomore Class has commenced the study of embryology under Prof. Eycleshymer of the University.

The Sophomores are taking an active interest in the weekly conference in chemistry lately instituted by Prof. Haines. Subjects connected with physiological and pathological chemistry are considered and at each session two members from each of the four sections are chosen to present papers.

W. L. Porterfield, '02, has recovered from an attack of malaria.

W. H. A. Burke, '02, is at his home in Walker, Iowa, rapidly convalescing from his recent illness.

R. R. Burt, '03, has returned from a short visit to Minnesota.

F. R. Clapp, '03, now rooms at 742 Jackson Boulevard.

At the fifteenth annual meeting of the Association of American Physicians held May 1, 2 and 3 in Washington, D. C. Papers were presented by Professors Billings, Herrick Hektorn and Bridge.

Students who leave the city before June 1, or change their city address, should not fail to leave their new address in one of the CORPUSCLE boxes, or mail it to the CORPUSCLE, 963 Washington Boulevard.

Alumni, and others not now subscribers to the CORPUSCLE, who receive copy of this issue, are requested to forward dues to the secretary of the Alumni Association, Dr. J. E. Rhodes, 34 Washington St., Chicago. Alumni paying their dues – $1.50 —receive the CORPUSCLE free for the year covered by the membership dues.

BASE BALL.

The following is the schedule of the base ball team:

May 12, Rush vs. St. Ignatius, at Rockwell street and Ogden avenue.

May 19, Rush vs. Lake Forest, at Rockwell street and Ogden avenue.

May 26, Rush, at Dixon, Ill.

June 2, Rush, at Kankakee, Ill.

June 6, Rush vs. Knox, at Galesburg, Ill.

June 7, Rush vs. Monmouth, at Monmouth, Ill.

June 8, Rush vs. Gilchrist.

The team has played four games up to date, having been defeated by the University of Chicago 10–7, and Lake Foerst 7–5. Northwestern was defeated by a score of 6 to 5 and Lewis Institute 22 to 6

The Corpuscle.

Rush Medical College, Chicago, Ill.

In Affiliation with the University of Chicago.

Vol. IX. JUNE, 1900. No. 12.

CONGENITAL CARDIAC MALFORMATIONS WITH ANURIA.

By A. C. Cotton, M. D.

Baby G. Born March 19th, 1900.

Family history negative. No history of syphilis obtainable. Mother, a primipara, had been well during gestation. Had never suffered from rheumatism.

Labor was normal. Weight at birth 7 pounds 4 ounces; length 22¼ inches. A well developed child, presenting no external malformations. Meconium was passed shortly after birth.

Although respiration was not delayed, it was noted that the skin did not assume the usual deep red color. There was a marked pallor which persisted, changing to a grayish hue, actual cyanosis supervening gradually as a late symptom.

On the second day the temperature rose to 102.8 F.; pulse 160; respiration 48. Examination of the heart showed a loud, harsh diastolic murmur which was heard all over the chest. It was impossible to locate the exact position of this murmur.

No urine was voided, and catheterization showed an empty bladder. Lactation was established on the third day. The child nursing ineffectually, the breasts were pumped and the infant fed with a tube. There was no vomiting nor any evidence of gatro-intestinal trouble.

The baby was not restless nor irritable, crying only when disturbed. At no time were there any symptoms of eclampisa. The breathing steadily increased in rapidity became labored and of a marked abdominal type. Anorexa became more pronounced, with a steady failure in muscular vigor. The child died of progressive asthenia on the fifth day, no urine having been secreted.

AUTOPSY BY PROF. HEKTOEN.

"Infant G.—female—aged 5 days.

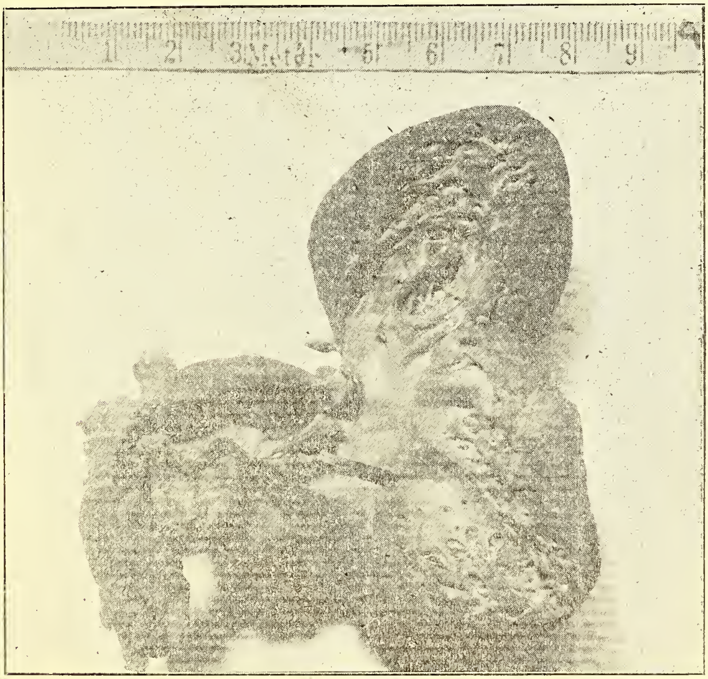
"A well developed, well nourished, female new-born child; the body still warm; the umbilical cord is dry and there is a line of separation around its insertion at the navel; rigor is strong; the surface of the body is livid.

"The serous cavities of the trunk are empty, their lining smooth. The diaphragm reaches to the fifth rib.

"The pharynx, larynx and trachea are normal. The thyroid and thymus are normal. The lungs are distended and contain many areas of hemorrhage, sub-plural and deep-seated. The lungs crepitate freely; no bronchitis; much congestion.

"There are subepicardial extravasations at the base of the heart. The heart is distended with blood. There is great enlargement of the heart, especially the left ventricle. From base to apex the heart is 4.5 cm. long; 5 cm. across widest base. The heart weighs 42 grm. The endocardium of the right side is normal. The depth is 4 cm., the wall is 3 mm, thick. The tricuspid orifice is 1 cm. in diameter. The foramen ovale is patent and the ductus arteriosus is large and widely open; the aortic orifice measures 6 mm. across.

The pulmonary artery is normal. The mitral orifice is small—about 5 mm. in diameter; the auricular surface of the valve is smooth but nodular, and there are delicate but smooth outgrowths and nodules upon the cordac tendinac. No ulceration, no thrombosis. The aortic valves are large, higher than normal (about 6 mm.), irregularly thickened, but smooth, there being small, delicate, reddish nodules upon them so that they appear somewhat deformed. There are three valves, but the anterior segment is attached to an irregular band-like bridge, 2 mm thick, (see plate) which extends across an oval depression in the upper part of the interventricular septum and the lower aspect of the aorta which here presents a marked bulging outward between aorta and pulmonary artery. It looks as if the lower end of the aorta and the interventricular septum had failed to meet fully. The depression is 1½ cm vertically, 1 cm across and 8 mm deep. The bulging is smooth and there is no communication between it and the pulmonary artery or the right ventricle. The interventricular septum is not perforate. The left ventricle is 4 cm deep and the wall is 5 mm in average thickness. The beginning of the



aorta just above sinuses of Valsalva is wider than usual but smooth; it is 2.5 cm in circumference; coronary openings are normal; coronary arteries normal.

"The liver is large, congested, bluish in color, and weighs 127 grams. It is smooth.

"The spleen is congested and weighs 7 grams.

"The kidneys show marked uric acid infarctions in the medullary pyramids. The ureters and bladder are normal. The adrenals are normal. The stomach and intestines are normal. The brain could not be examined.

"Diagnosis: Chronic endocarditis of aortic and mitral valves (mitral stenosis); defect at base of aorta (aortic regurgitation); hypertrophy of heart; general passive congestion; dilated ductus arteriosus."

Points of especial interest: (1) The left sided congenital lesion; (Rauchfous of St. Petersburg finds, out of 300 cases of foetal endocarditis, only fifteen showing left sided lesion alone.) (2) Unusual character of the malformation; (the writer has thus far failed to find any record of a similar case); (3) Negative maternal history as to rheumatism, infectious or specific diseases; (4) Absence of early cyanosis with such a manifest lesion. Question of interest: What is the relation of congenital malformation of the heart to anuria? The blocking of the kidneys by uric acid crystals forcibly recalls the case of anuria with congenital cardiac malformation presented by the writer at the last meeting of the American Pediatric Society.

"Leroy S. was born after a natural labor on the morning of February 28, 1899. The mother of the child was twenty-three years of age, a Swede by birth. Her family history was negative and her personal history excellent. The date of her last menstruation was April 17, 1898. Nothing unusual was noted during the course of her pregnancy.

"Analysis of a twenty-four hours' specimen of urine the day before delivery presented the following findings: Amber, slight turbidity, specific gravity, 1026; albumin, 0; sugar, 0.

"Microscopical examination: 1. Calcium oxalate crystals. 2. Large amount of a morphous urates.

"The baby, a male child, was plump, robust and weighed at birth eight pounds, but its skin did not present that boiled lobster appearance so characteristic of the new-born. It had the appearance as to color rather of a child three weeks of age. Upon examination the child presented no deformities or malformations.

" At the end of twenty-four hours, as he had not urinated, a surgical probe was introduced into the urethra and was easily passed into the bladder, there being no obstruction. A condom was then attached to the penis, hot sitz baths were given, also hot fomentations to supra-pubic region and lumbar regions, but with negative results. At the end of forty hours a gum elastic catheter was introduced into the bladder and about 1 cc. of urine spurted out. Bimanual examination proved the bladder to be absolutely empty.

"During the first eighty hours the child rested well, nursing every two hours. The rather dry skin gradually assumed a deep, dusky hue and toward the end of the fifth day presented marked cyanosis at times. The temperature ranged from 99° to 102.4° F.

"*Nervous Symptoms:* At the beginning of the fourth day the child began to have convulsions which were tonic in character, beginning in the depressor anguli oris muscles and affecting the entire body, the respiratory muscles being principally involved. The convulsions, occurring at intervals of ten minutes and lasting one minute, became more frequent and gradually became clonic in character. Just before death they were almost continuous, and during the last twenty-four hours the child was in a deep stupor from which it could not be roused.

"*Respiratory Symptoms:* Respirations ranged from 40 to 80, quite regular at first, but toward the end became more shallow and irregular. Physical examination of the lungs negative.

"*Circulatory Symptoms:* Pulse ranged from 160 to 180. Second aortic sound highly accentuated, otherwise negative.

"*Digestive System:* Tongue slightly furred and brownish-red in color. Appetite good until the third day when he refused to nurse and was fed from a spoon. This method was continued for twenty-four hours when he began to vomit, retaining nothing. The vomitus, at first, consisted of stomach contents, but gradually became fæcal, resembling very much in its character meconium, being very black and tarry. The bowels moved freely until the fifth day, after which they responded only to hot rectal enemata.

"Abdominal palpation and percussion gave negative results.

"*Resume of Treatment:* External. Hot sitz baths, hot fomentations, supra-pubic and lumbar, hot tub baths, dry heat.

"Internal. Infusion of watermelon seeds *ad libitum*. Calomel, tincture of hyoscyamus, fluid extract of triticum repens.

"*Post-mortem* report by Prof. Hektoen, March 4, 1899.

"'Leroy S. Age five days, eleven hours.

"Clinical diagnosis. Anuria.

"Day of death, March 3, 1899.

"Anatomical diagnosis, 'Morbus cæruleus.' Defective septum between pulmonary artery and aorta. Patent ductus arteriosus and foramen ovale. Cyanosis of the skin. Subpleural ecchymosis; fatty cirrhosis of the liver (probably); uric acid infarction of the kidneys; general infection with bacillus mucosus capsulatus.

"Well-developed, fairly well nourished male infant; 51 cm. long; weighing 2,657 gm. There are no external malformations. The surface of the body, both anteriorly and posteriorly, is bluish-red in color. The umbilical cord is dry and separating at the navel. Abdomen somewhat distended. The abdominal cavity empty, the lining smooth. Diaphragm reaches the fifth right and sixth left rib. The pleural cavities empty and smooth as to lining, the visceral pleura being the seat of many hemorrhagic extravasations. The pericardium is also smooth, the cavity containing a small amount of clear fluid.

"The pharynx, mouth, larynx, trachea and œsophagus are normal. The thyroid is of usual size, the thymus rather small. The lungs are fully distended and show many small deeply congested spots throughout the parenchyma. No bronchitis. The heart presents a right ventricle which is much larger than the left, which is situated more behind the right than usual. The walls of the two ventricles are of about the same thickness, but the cavity of the right ventricle is much larger than that of the left. The tricuspid and pulmonary valves are quite normal; the mitral and aortic valves are also well formed and normal, but there is an oval defect about 1½ cm. in its greatest diameter between the pulmonary artery and aorta, so that the beginning of the aorta and the pulmonary artery have a common trunk from which emerge, in the usual places, the right and left pulmonary arteries and the branches of the arch of the aorta. The ductus arteriosus is fully patent and quite large. The part of the aorta distal to this duct is wider than the transverse part proximal to the duct. The foramen ovale is widely open. The veins, pulmonary and cavæ, are quite normal. The ventricular septum is normal. The stomach and intestines are normal. The pancreas is normal. The liver and spleen are congested, the liver being soft and mottled yellow and red. The spleen weighs 10 gm; the liver 110 gm; the adrenals normal, weight 11 gm.

"The uro-genital organs are normally situated. The bladder contains a small amount of turbid urine. The mucous membrane immediately around the uretal orifices is swollen and red. There is no dilatation of the uretere or pelve. There is marked uric acid infarction in both kidneys with some congestion of the pyramids. The kidneys weigh 26 gm. The brain and its membranes are normal; weight 38 gm. The lines of ossification are even and regular.

"*Histological Examination.* 1. Sections of the heart show only normal structural conditions:

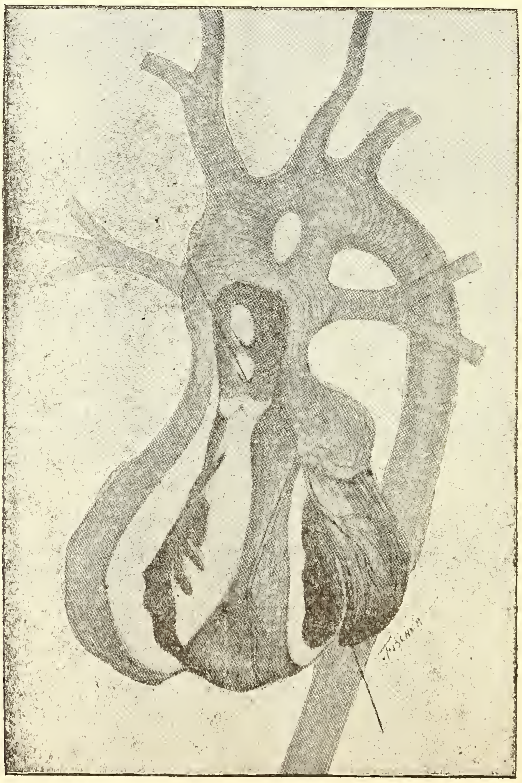
"2. The lungs are the seat of an extensive hemorrhagic infarction, the alveoli and bronchioles in places being filled to distension; otherwise no changes.

"3. The liver is the seat of a marked passive congestion with fatty infiltration of the liver cells and some recent increase in the periportal connective tissue which is rather cellular.

4. The cortex of the kidneys shows cloudy swelling of the epithelium of the convoluted tubules. In the medulla the uriniferous tubules are crowded full with granular material which stains light blue with hematoxylin. The epithelial lining is intact and the vessels uniformly distended with blood. Sections stained with methylene blue show occasional encapsulated short bacilli here and there in all the organs, especially among the extravasated blood corpuscles and in capillaries of the lungs.

In the above case the heart showed a common trunk for aortic and pulmonary vessels, as shown in drawing. At least two other cases have come under my observation, in which death from anuria in the first week occurred in babies showing heart anomalies. The exact nature of these anomalies could not be ascertained, autopsies being refused.

If we might accept the older theory that uric acid precipitation be due to suboxidation, then we might reason that any cardiac malformation which interfered with the circulation of oxygenated blood through the kidneys would favor the accumulation of uric acid in these structures. Late authorities seem inclined to discard this Vierordt theory, in favor of the one of which Horbaczewski is a recognized expounder. This is. that uric acid is derived in the body from the disintegration of proteids containing nuclein, notably from the leucocytes. Accepting this theory of the derivation of uric acid from the nuclei of leucocytes affords a rational explanation of the freqency of infarcts in the new born, a marked leucocytosis at that age being acknowledged. It has been shown that diet



which favors leucocytosis also increases deposition of uric acid. The question as to whether the latter be derived from the nuclein of proteid ingested or from the nuclein of the leucocytes called out by digestion, matters little, it seems to the writer, so long as it is admitted that thorough oxidation is necessary for complete metabolism, with resultant urea.

The well known frequency of uric acid infarcts at a time when the heart is physiologically incapable of furnishing arterial blood to the renal arteries, on account of the still patent formen ovale and ductus arteriosus further strengthens this opinion. The writer sees an analogy between this condition and the congenital cardiac deformities, which are practically a persistence and aggravation of the conditions which normally obtain in the first few days of life.

DISEASES OF THE KIDNEY, AMENABLE TO SURGICAL TREATMENT.*

By Dr. Christian Fenger.

Professor of Clinical Surgery, Rush Medical College, Chicago.

(Continued from May Corpuscle).

Examination of the Urine (*bacteriological*). After thorough cleansing of the external genital organs and of the urethra, the bladder urine must be withdrawn by a sterile catheter lubricated with boiled olive oil, and collected in sterile test tubes. If there is doubt whether the pus or blood comes from a diseased bladder or from the kidneys the bladder should be washed out and the urine collected directly from the ureter by means of a catheter left in the bladder. An aspiratory puncture with a fine needle above the symphysis and removal of the urine through an aspirator syringe, as practiced in Johns Hopkins Hospital, does away with the danger of infection by the catheter and protects against contamination of the bladder urine. Examination of the collected urine must be made without delay, as the urine changes rapidly by decomposition. The reaction, whether acid, alkaline or neutral, should be noted. Microscopical examination after sedimentation by means of the centrifuge, may reveal red blood corpuscles, white corpuscles, pus cells, crystals, cylinders and epithelial cells from the urinary tract, or very rarely abnormal cells from tumors. Chemical examination should be made for albumin, blood and sugar. If the filtrated purulent urine contains much albumen, disease of the kidney must be suspected, since the longer the pus cells remain in the urine the more of them will be dissolved.

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*Read before the Ontarlo Medical Association, June 14th, 1899.

Quantitative Examination for Urea. After the patient has been on nitrogenous diet for some time, a sample from the twenty-four hour urine should be examined by Esbach's method, for example. The hypobromite solution should always be made fresh. As alkaline decomposition of urine diminishes the urea; the bladder should be washed out, so that acid urine may be voided and the examination should be made as soon as possible after the urine has been passed. If the quantity of urea is below normal as is found in tumor, stone and pyonephrosis, it may be concluded that the other kidney is not healthy, and, consequently, that operation is dangerous. As an aid in the differentiation between disease of the bladder and of the kidney and to ascertain from which kidney the blood or pus is excreted, resort is made to cystoscopy—direct cystoscopy through a tube, the light being thrown into the bladder, previously distended with air, from a head mirror, as practiced by Kelly, is useful in women. Indirect cystoscopy is made by means of Nitze's cystoscope, in which an electric lamp in the bladder, previously filled with water, illuminates the bladder wall. To collect the urine separately from each ureter, we resort to catheterization of the ureter by means of a long, fine, flexible ureteral catheter inserted by the aid of the cystoscope. An instrument devised by Harris for this purpose may be tried. Direct examination of the kidney through an extraperitoneal (lumbar) incision is the last step in a positive diagnosis. When the surface of the kidney has been laid bare we may palpate or aspirate, as in cystonephrosis and stone, or excise a piece of kidney tissue for microscopic examination, or we may bisect the organ longitudinally down into the pelvis in case of stones in the calices, stenosis, valve formation or abscess. Division of the healthy kidney tissue, even in the median line, causes considerable hemorrhage which may be controlled by compression of the renal vessels by the hand of an assistant or an intestinal compressor, or directly packing with gauze.

MOVABLE KIDNEY.

An elastic abdominal supporter with a pad under the ribs, together with appropriate internal treatment should always first be tried, as many patients obtain a sufficient degree of relief therefrom. If this treatment fails, the operation of nephrorrhapy or nephropexy, which was first made by E. Hahn in 1881, should be performed. The operation is as follows: After lumbar incision and division of the capsule, the kidney is laid bare, pushed up into its normal location, and the fibrous capsule together with a layer of the cortical substance united with the fascia and outer periosteum of the twelfth rib by three or more sutures. To avoid relapse, however, it is advisable to follow the suggestion of Tuffier who, in addition to the sutures, dissects out a flap of the fibrous capsule two cms. broad and the length of the kidney, and unites this flap with the borders of the divided muscles. Neophrorrhaphy has a mortality of about one to one and one-eighth per cent.; about sixty-five per cent. of permanent cures, in ten per cent. improvement takes place, and relapses occur in twenty-two per cent. of the cases.

CONTUSION OF THE KIDNEY.

Subcutaneous Rupture. Absolute rest in bed for three weeks is essential to avoid the danger of secondary hemorrhage. Simulants should be given during the period of shock and morphine for the pain. Local application of cold (icebag) is often employed and Tuffier recommends compression of the costo-iliac space by a pad of cotton held in place by a flannel bandage. The patient should be put on a light liquid diet. Ergot, acetate of lead or other hemostatics may be employed. It is important to avoid the use of the catheter and absolutely essential to secure asepsis if the catheter must be used. Hemorrhage or infection may necessitate operative treatment, Hemorrhage from the larger vessels may be stopped by ligature or tampon, but if the whole kidney is found to be crushed it should be removed.

Infection may require evacuation of pus by nephrotomy, followed by drainage or nephrectomy if the greater part of the kidney tissue is destroyed or if the kidney is the seat of multiple abscesses.

WOUNDS OF THE KIDNEY.

Gun-shot wounds should be sealed after thoroughly cleansing the skin, and the patient should be kept in bed for at least three weeks. If a large swelling and symptoms of anemia appear, the kidney should be laid bare and the hemorrhage stopped by ligature or tampon, or nephrectomy should be made if the renal vessels are injured. Incised wounds with external hemorrhage should be freely opened and the kidney examined. If the wound is aseptic the kidney can be sutured; if infected, the hemorrhage should be stopped by packing and the wound united later on by secondary suture. If urine exudes, drainage is required. If infection of the accumulated blood and urine occurs, as indicated by onset of fever, pain and increased lumbar swelling after eight or ten days, free incision (nephrotomy) or eventually nephrectomy must be made. The hematuria almost always stops spontaneously, but if it persists despite rest and ergot, and if copious, the patient's life has been saved by nephrectomy (in five out of six cases—Tuffier). If the bladder is filled with coagula, causing vesical retention, catheterization, is usually resorted to, but this is difficult, as the clots often occlude the eye of the catheter. It is, therefore, better to use Bigelow's litholapaxy evacuator. If this procedure is unsuccessful, suprapubic puncture and aspiration of the urine and liquid blood may be of assistance during the few days required for the crumbling of the coagula. If aspiration is tried in vain, the bladder must be opened either by perineal section, or, preferably perhaps, by epicystotomy.

NEPHROLITHIASIS.

Medical treatment should always be resorted to after operation for removal of stone, and when operation is deemed unnecessary or dangerous. In acid lithiasis with urate or oxalate stones, lithia water from a pint to a quart a day, and half a teaspoonful of bicarbonate of soda with the meals should be given for six weeks, to be repeated three or four times a year. The alkaline mineral waters, open air exercise, regulated diet, no abuse of alcoholics, will serve as an outline of the treatment. In alkaline or phosphatic lithiasis, the urine should be made acid by the use of boracic acid in doses of fifty cgm., or salol in one-third gram-doses three or four times a day. Three or four pints of cold boiled water should be taken daily by all patients.

Surgical Treatment. The operations for nephrolithiasis are nephrolithotomy, pyelolithotomy, nephrotomy, and nephrectomy. Nephrolithotomy, or removal of stones from a healthy, non-infected kidney, was first made by Morris in 1880. Through an oblique lumbar incision the kidney is isolated, brought out into the wound and palpated in order to feel stones in the pelvis. The stones in the calices are sought for by puncture with an aspirator needle, and, if found, are removed by an incision made with the needle as a guide. If retention exists, the pelvis is found by aspiration and the kidney opened on its convex surface on the needle as a guide. When the pelvis is opened, exploration is made with the finger or metal sound. The stones are extracted after division, if they are very large, but always with as little manipulation as possible. The hemorrhage from healthy kidney tissue is considerable and must be controlled by compression of the vessels in the hilus or by local pressure with gauze sponges. The thermo-cautery may also be of use as a hemostatic in these cases. The ureter is then examined with a metal probe to determine its permeability and to detect stones. The stones extracted should be carefully examined to determine whether pieces have been broken off and left in the kidney. If asepsis is certain, the wound in the kidney should be united by catgut sutures by which hemotsasis is assured. Primary union may take place.

Pyelolithotomy. If the stone is located in the pelvis near the ureter, it may be removed through an incision in the posterior pelvic wall. This operation possesses the advantage that there is no hemorrhage, but has the disadvantage that stones are more easily overlooked and that the operation is said to be more frequently followed by fistula. (Rovsing).

Nephrotomy, or Opening into a Suppurating Kidney to Evacuate Pus and Remove Stones if present. The kidney is opened at its most prominent point over the thin walled sacs. Exploration is then made with the finger and steel sound for stone. This must be done carefully, as stones were either not found, or as all stones were either not found, or as all stones were not removed, in sixteen per cent of one hundred and fourteen cases reported by Tuffier. The thin, atrophic kidney wall does not bleed. The wound in the kidney is united to the skin, and the cavity packed and drained in order to overcome the pyelitis by local treatment.

Nephrectomy, which was formerly much in vogue, has been almost entirely abandoned. It possesses the advantage that, if the patient survives, he is cured by a single operation; but the mortality is thirty-eight per cent, as against thirty-three per cent mortality for nephrotomy. For this reason, many operators follow the advice of Guyon, first, to make nephrotomy and later on nephrectomy, if demanded. This secondary nephrectomy, after the lapse of months or years, is a relatively safe operation.

Calculous Anuria. When the only useful kidney is closed by stone, nephrotomy, as suggested by Thelen, in 1882, should be done during the period of tolerance. Hot baths, careful massage of the ureter, electricity, and chloroform narcosis may be tried for a day or two. If the patient is not operated upon, Tuffier and Legueu's statistics show that twenty-eight per cent recover by spontaneous expulsion, and that seventy-two per cent die, while operation has saved sixty per cent.

PYONEPHROSIS AND PYELONEPHRITIS.

Treat or Cure the Cystitis and Overcome the Causes of Retention (Stricture, Enlarged Prostate, Abdominal Tumors, etc). Primary hematogenous pyelonephritis in a patient who has free passage of urine is amenable to internal treatment. The lines upon which the treatment is based upon are: rest in bed, increased diuresis by drinking large quantities of water or milk and biborate of soda up to thirty grams daily (Tuffier). Salol in doses as high as three grams a day has been recommended, but is apt to cause poisoning (hemoglobinuria). Boric acid and the alkaline waters are safe agents to employ. When the disease is unilateral or the sepsis acute, operative treatment is indicated. Nephrotomy is the operation of choice; lumbur incision, evacuation of the perinephritic abscess, incision of the kidney, evacuation of pus and stones, division of the partition walls in a multilocular cavity, irrigation, packing with sterile gauze and drainage after suturing the kidney wound to the skin. If the suppuration persists, secondary nephrectomy may be required. If a fistula remains and the kidney is worth saving, a secondary operation to re-establish the passage through the ureter is required. Primary nephrectomy should be made only when the kidney tissue is filled with multiple abscesses and acute sepsis demands the removal of the organ. Weir, in an article on "The Surgical Treatment of Surgical Kidney," reports seventy-one cases of acute surgical kidney, ascending infection, twelve of which, or sixteen per cent., were unilateral. Thus, if the condition of the patient permits, exploratory lumbar incision may be made on one or both sides, and the kidney removed if needed. He reports a case of gonorrheal cystitis in a man of twenty-five. During convalescence, acute septic infection of the right kidney occurred. On the eleventh day after the initial chill, the patient had right renal pain. He was taken to the hospital where a diagnosis of ileotyphus was made, and icebags applied for the pain. A swelling appeared in the region of the right kidney. On lumbar incision it was seen that the kidney was twice its normal size. No pus was evacuated on puncture. An incision one inch in depth revealed multiple miliary abscesses and ecchymoses. The kidney was therefore removed, and the patient recovered. Nephrectomy should also be made in all cases where no active kidney tissue remains. As it is, however, usually impossible during an operation to determine the secretory value of a kidney, nephrotomy should always be first resorted to. In operations for nephritis, as in all operations on the kidney, it is not permissible to employ poisonous antiseptics. Sterile water should be used and sterile gauze, not iodoform gauze, as has been so often recommended.

TUBERCULOSIS OF THE KIDNEY.

Internal Treatment has Symptomatic Value only. Operation may effect a cure which will last for years. Nephrectomy, total or partial—the latter being rarely applicable—is the operation of choice. It is applicable when the other kidney is healthy, and when the patient's condition as regards tubercu-in other organs permits. It has, however, been seen that tuberculosis in the bladder has improved after nephrectomy. The tuberculous ureter may be excised with the kidney if the patient's condition permits. Subcapsular nephrectomy with curetting of the adipose capsule has the advantage of being easy of execution, but has the disadvantage of not removing all the tuberculous foci. Nephrotomy for evacuation, curetting and local treatment is recommended by as high an authority as Guyon, to be followed by secondaty nephrectomy when the patient's health is improved. Guyon gives the excellent advice on technique of the operation, to suture the divided adipose capsule to the skin before opening into the tuberculous kidney ,in order to avoid infection of the wound. Nephrotomy as a curative operation, is being abandoned, as not one of the ninety cases reported by Vigneron and Facklam was cured, and as the operative mortality was twelve or thirteen per cent., making the mortality from the disease thirty-three to thirty-eight per cent. On the other hand, of eighty-eight primary nephrectomies reported by Facklam, 28.4 per cent. died, and 40.9 per cent. resulted in perfect cure, in fourteen cases the patient lived from two to eight years after the operation. No operation should be made when the urea is diminished below one-third of the normal.

MALIGNANT TUMORS OF THE KIDNEY.

Nephrectomy should be made by lumbar incision in case of the smaller tumors, but the transperitoneal operation will be required if the tumors are too large to be removed through a lumbar wound. The tumor is operable if it is limited to the kidney, and if there are no metastases in the lymphatic glands. In many cases this cannot be determined before exploratory incision renders palpation of the organ possible. If it is found that enucleation cannot be completed in perfect healthy tissue, the operation should be abandoned. The prognosis of the operation is grave; the operative mortality before 1890 was over sixty per cent., but has decreased in the last five years to twenty-five per cent. (Wagner.) Radical cure is rare, but the instances are increasing in which a permanent good result is obtained. Israel reports three patients out of eleven operated upon who were in good health after three years; I have one case in which the patient is still in good health, eight years after operation. Local relapses may come on later, after three years or more. Therefore Tuffier gives six years as the time which must elapse before the patient may be said to be permanently cured.

BENIGNANT TUMORS OF THE KIDNEY.

Lipomata, adenomata, fibromata, angiomata, myomata and combinations of these have been found in the kidney. In most cases the tumors are small, give rise to no symptoms, and are discovered accidentally on the *post-mortem* table. Benignant tumors have been removed by nephrectomy in about ten cases only; two of these were adenomata and eight fibromata (Rovsing). Serous cysts about the size of a walnut, either solitary or multiple, should be recognized during operation, and removed by resection. Echinococcus cysts are found most commonly in men between the ages of twenty and forty; ordinarily in one kidney only, and most often in the left. There is usually one mother cyst which begins in the cortical substance, causes expansion and atrophy of the kidney tissue, and, when large, may extend to the abdominal cavity, becoming adherent to the colon, liver, spleen, etc. Finally, after one or two years the cyst ruptures, fortunately most often into the pelvis of the kidney and evacuates part of its contents through the ureter. The symptoms are at first vague; the tumor is globular, and often movable. Rupture is marked by a sudden pain, followed by renal colic as the daughter cysts pass down the ureter, and vesical tenesmus when they pass out into the urethra. The cysts are usually crushed during their passage from the kidney, and we find in the urine transparent gelatinous masses (the sac walls), and a little blood. Microscopic examination reveals the characteristic hooklets and lamellated membranes of the sac. Later on infection occurs, which is attended by fever and emaciation, terminating fatally in most cases (twenty-three out of twenty-nine cases, Boekel) spontaneous recovery being the exception.

Treatment.—The cysts should be opened by lumbar or transperitoneal incision, the contents evacuated, and drainage maintained until the cavity is closed. The opening in the cysts wall must be united to the skin. Lumbar incision, if practicable, is to be preferred. If the transperitoneal route is chosen, the operation in two stages is preferable. Le Dentu treated nine cases, and Wagner twenty-eight cases in this manner, and all the patients recovered; while out of ten cases in which nephrectomy was performed, Wagner reports three deaths, and of eleven cases of puncture alone, or puncture with injection of tincture of iodine, three were cured, three remained unimproved, and five died.

ANEURISM OF THE RENAL ARTERY.

Rovsing reports that only nine well-described cases of aneurism of the renal artery are to be found in the literature. The diagnosis was made in none of these cases until an exploratory operation or autopsy revealed the true character of the disease. If the aneurism is located on one of the large intra renal branches, the swelling is central, and causes distension of the kidney. It it is an aneurism of the trunk of the renal artery, the tumor is located outside of the kidney in the hilus, and pushes the kidney aside without making any change in the shape of the organ. The symptoms are a rapidly increasing, tense or elastic tumor, with a feeling of heaviness and pain, which may radiate down to the testicle of the same side. Pulsation has not been noted in any of these cases. Diagnosis is practically impossible before an explanatory incision has been made. The possibility of aneurism should be considered when, subsequent to an injury in the region of the kidney, a tumor of considerable size develops rapidly with no hematuria, especially in patients having arterio-sclerosis or syphilis. The treatment is nephrectomy, after ligature of the renal vessels as close to their origin as possible. Two patients have been saved in this manner. (Hochenegg, Hahn).

Cystoneprosis (*Hydronephrosis*, *Pyonephrosis*).—Dilatation of the urinary passages occurs above an obstruction to the free flow of urine. It begins immediately above the point of stenosis and extends gradually backward toward the kidney. Thus, a stricture of the bulbous portion of the urethra causes, first, dilatation of the membranous urethra, next of the bladder, then of both ureters, and finally of the pelvis and calices. If the obstruction is in or below the bladder, the dilatation extends to both kidneys; while if the obstruction is located in the ureter or above it, the dilatation will be limited to the kidney of the affected side. If only one of the two branches of the ureter is occluded, a partial dilatation of the kidney takes place, which is limited to the corresponding half of the organ. Dilatation of the pelvis and calices above the ureter may be termed cystonephrosis. When no infection of the retained urine has taken place it contains a watery fluid and is termed hydronephrosis. When infection has transformed the fluid into pus, we speak of pyonephrosis.

1. *Remittent Cystonephrosis.*—The most formidable enemies to kidney tissue are retention and infection, and it is difficult to state which of the two is the more formidable, Retention, if incomplete, that is, remittent, may, I believe, be tolerated for a long time; if complete, it is rapidly destructive. In movable kidney with paroxysms of pain, we find upon microscopic examination of apparently healthy kidney tissue, a glomerulo-nephritis or interstitial nephritis. I do not know whether or not this is caused by retention or venous congestion from torsion of the vessels in the hilus. Whatever the cause may be, the development of the nephritis and slow destruction of the glomeruli, and consequently of the secretory value of the kidney, furnishes a probable argument for operations for replacement of the kidney, for nephropexy, irrespective of and in addition to the symptomatic relief obtained by it. Remittent or beginning retention (and all retention is, in its early stages, as a rule, remittent), is a condition in which we should always consider the possibility of saving kidney tissue by re-establishment of the free passage of the urine. The obstruction may be located in the calices, in a branch of the ureter, in the bottom of the pelvis or origin of the ureter, or in the ureter. Obstruction in the first two locations causes a local or partial cystonephrosis and demands, for the relief of the condition, bisection of the kidney from its convex surface, and division of the partition walls. Stenosis at the exit of the ureter (valve formation, oblique implantation from unilateral dilatation), requires operations which vary in accordance with the absence or presence of stricture at the upper end of the ureter. If there is no stricture at the upper end of the ureter, the valve-formation may be overcome by a trans-pelvic operation (Fenger, Mynter, Trendelenberg, Küster). If there is a stricture of the ureter at its exit from the pelvis, as may be expected in infected cases, we may resort to extra-pelvic operation: Plastic operation (Fenger); or, resection (Küster). I have twice made the extra-pelvic plastic operation, which has also been done by Morris, Kelly, Maurice Richardson and others. The operation consists in division of the stricture up into the pelvis and down into the ureter and transverse union of the longitudinal wound. Resection of the strictured end of the ureter, and implantation of its upper end into the pelvis,

has been done by Küster. If the stenosis or obstruction is located in the ureter, it must be dealt with according to the laws laid down for the surgery of the ureter. There is one drawback or difficulty in the way of the development of surgical treatment of renal retention when the obstruction is located in the kidney and pelvis (to a less extent in the ureter), namely, that the subject cannot be well studied by experiments on animals. We can produce a stricture of the ureter, but we cannot artificially produce valve formation and oblique implantation of the ureter in the pelvis, nor can we cause obstruction in a branch of the ureter or the calices. Thus the best methods of operation and development of technique have to be studied and perfected by operation on the relatively rare cases met with in the human subject. Are the results of these, so to speak, tentative, conservative operations permanent, or does relapse eventually occur? In four of my cases no relapse occurred: (1) Woman.—Valve-formation, intra- or transpelvic operation. No relapse six years later. (2) Man.—Stricture upper end of ureter, extrapelvic operation. No relapse six years later. (3) Man.—Valve-formation of lower branch of the ureter; extrapelvic operation; bisection of kidney; division of partition walls. No relapse after three years. (4) Woman. —Excision of valve in ureter by my plastic operation. No relapse after three years. In three cases relapse occurred: (1) Woman.—Intrapelvic operation on valve-formation without stricture. Relapse of stenosis, occlusion of pelvic orifice; nephrectomy one year later. (2) Man.—Operated upon by another surgeon; later on by me; operation was incomplete, failed, and nephrectomy was finally necessary. (3) Man.—Stone in upper end of ureter removed by me; one year later, plastic operation on ureter by another surgeon; six months later I found complete occlusion of the ureter at the site of of second operation and made another attempt at a plastic operation; patient still under treatment.

Beginning cases of open, intermittent, non-infected, cystonephrosis, when due to bending of the ureter in a floating kidney, may be treated by nephrhpexy, provided the bend is found to straighten out when the kidney is replaced. If no bend exists, the sac should be opened and the obstruction sought for by exploring the ureter from its pelvic origin down to the bladder. A valve or stricture may be remedied by a plastic operation, or a stone may be removed from the ureter. If it is thus possible to remove the cause, the kidney can be saved and should be saved if secreting kidney tissue still remains.

Infected, Remittent Cystonephroiis (*Pyonephrosis*), must necessarily be opened for drainage and examined as regards the removal of the obstruction; but here the question of removal of the kidney comes up, and if suppurative nephritis, with multiple abscesses in the kidney tissue is found, nephrectomy should be done, but this is extremely rare.

Stable, Permanent, Non-infected Cystonephrosis, (*Hydronephrosis*) has been treated by puncture, incision and extirpation (nephrectomy). Rovsing has collected from the literature ninety-two operations for hydronephrosis, with the following results:

Operation.	Recovery.	Unimproved.	Died.	Total number of Cases.
Puncture with Drainage	1	2	9	12
Nephrotomy	..	15	13	28
Transperitoneal Primary Nephrectomy. ..	16	..	3	19
Transperitoneal Secondary Nephrectomy.	7	..	3	10
Lumbar Primary Nephrectomy	18	..	2	20
Lumbar Secondary Nephrectomy..	3	..	..	3

It will be seen from this table that puncture, even with drainage, is insufficient, dangerous and should be abandoned. Nephrectomy or total extirpation of the hydronephrotic sac has given the best results, and is the operation which should be employed in the majority of cases. Transperitoneal nephrectomy was most often performed in cases in which a large sac filled the abdemen and a correct diagnosis was not made before the operation. If it is known that a hydronephrosis is present, the lumbar operation should probably always be done. If the hydronephrotic sac contains no secreting kidney tissue, as is the case in most of the very large hydronephroses, nephrectomy is indicated. A large sac which is practically valueless as to secrecion, and is clad with mucous membrane, is very apt to become infected after nephrotomy and drainage, It is almost impossible in such cases to prevent infection, and Rovsing's statistics show that out of twenty-eight cases of nephrotomy, thirteen patients died. In most cases of large, stable hpdronephrosis, we find the other kidney sufficient for the urinary secretion. This is demonstrated by the fact that out of fifty-two cases of nephrectomy only eight patients died. In small recent stable hydronephroses, however, when kidney tissue can be recognized in the walls of the sac, and when remittent evacuation, found at first, has recently ceased, we may expect to find secreting kidney tissue that is worth saving. Here nephrotomy should be tried and the obstruction sought for. If the sac is too large to permit of finding the ureter, we may wait for a few months until it has retracted. During this time we must examine the quantity and quality of urine excreted daily from the lumbar opening. If the quantity is considerable, the obstruction can be sought for and remedied by a secodary operation. If no urine is secreted, secondary nephrectomy should be done.

Exploratory Incision with Excision of Piece of Kidney Tissue for Microscopie Examination. Exploratory incision, which is probably the most important consequence of Morris' operation on healthy kidney tissue, has been developed gradually by mistakes in diagnosis. Kidneys which presented symptoms of pain and even attacks of simulated renal colic or hemituria, or both of these conditions combined, were laid open under the diagnosis of stone or tumor, and none of these conditions were found. The kidney was explored more or less thoroughly by inspection, needle puncture, division of capsule, division of cortical substance and even by bisection, laying open the pelvis and calices. As it was gradually recognized, according to Albarran, that this operation was without danger and as almost all authors agreed in this regard, it was natural that it should be restored to without hesitation. It was still more commonly practiced because it was found that in many cases in which neither stone nor tumor was found and in which no definable disease of the kidney could be made out without microscopic examination, which at this time was not made, the operation relieved the pain and hematuria, and effected a symptomatic and often a permanent cure. In the course of time, as exploratory incisions for pain and hematuria became more frequent, and as the kidneys were more closely observed, some slight pathological conditions were often found to account for the symptoms as well as for the cure of certain of these cases by exploratory incision. Thus, Tiffany found a cicatrix in the upper lobe of the kidney; Barker, oxalate of lime crystals; Abbe, gravel in a calyx; and Lauenstein, dilatation of pelvis and, consequently, retention. In cases of the so-called hemophilia of the kidney, for which, since the celebrated case of Senator, the kidney has five times been extripated, Albarran believes that a careful microscopic examination would often demonstrate the presence of nephritis. In chronic nephritis we may have unilateral hematuria, as in the infectious nephritis following la grippe. To relieve the tension caused by pressure in some forms of albuminuria, probably due to nonsurgical nephritis, Reginald Harrison advised, in 1896, exploratory operation with puncture or division of the albugineous capsule. With the same object in view, Le Dentu, as early as 1881, and Lambert in 1897, found relief of symptoms due to division of the capsule along the convex border of the kidney by the knife or Paquelin cautery. To make exploratory incision complete as to its diagnostic value, which may go hand in hand with, and be as important as, its therapeutic value, it is essential to excise a small piece of kidney tissue for microscopic examination. This has been my custom for years. It is often impossible, when we have the divided kidney in our hands, to make a correct diagnosis of the apparently healthy kidney tissue with the naked eye. This has been well demonstrated by a series of seven cases operated upon by Oscar Bloch, four of which I will briefly mention.

CASE I. Diagnosis before operation: Stone, slight pyelitis movable kidney or neoplasm. Diagnosis during or after operation: Beginning diffuse sarcoma (malignant tumor). Diagnosis after microscopical examination of excised renal tissue: Slight nephritis, with microbes.

CASE II. Right renal pains for eight years at intervals—first of one month, later of a few days only. Diagnosis before operation: Doubtful whether renal disease exists or not. Diagnosis after nephrotomy and digital exploration of pelvis and calices: Chronic adhesive perinephritis; uncertain renal disease. Diagnosis after microscopical examination: Parenchymatous and interstitial nephritis. One year later the patient was suffering no pain and was in perfect health.

CASE IV. Diagnosis before operation: Deep peritoneal or retroperitoneal abscess on right side. Diagnosis after lumbar incision and vacuation of 1.400 of pus: Uncertain as to location and nature of abscess. Diagnosis after microscopical examination of piece of wall of sac: Pyonephrosis, (uriniferous canals and tubules found in in wall of sac).

CASE V. Diagnosis before operation, but after puncture which vacuated old pus: Pyonephrosis of long standing with closed ureter. Diagnosis after operation: Chronic nephritis (yellowish cortical substance; indistinct border line between cortex and pyramids). Diagnosis after microscopical examination: Normal kidney. The tumor in this case was a cyst of the spleen.

Albarran reports a case of fifty-one who had had nephritic colic for a year, after which hematuria appeared. Upon cystoscopic examination blood was found to issue from the right kidney. Diagnosis: Stone or neoplasm (not tuberculosis).

Operation: Exploratory nephrotomy, kidney slightly enlarged, pelvis and calices somewhat dilated and flaccid. Opening through kidney into the pelvis; digital exploration found no stone, "but the finger brings out some framents resembling false membrane." A bongie introduced through the kidney passed down freely into the ureter. Wound and kidney closed by catgut sutures and healed by first intention.

Microscopical Examination. The false membrane showed carcinoma. The kidney was removed thirty-one days later and the patient recovered.

As regards the technique of exploratory incision, it may be said that the kidney should be exposed by a lumbar incision, the condition of the adipose and fibrous capsules noted; the kidney liberated in the usual manner for palpation and inspection; needle puncture, if stone is suspected; the fibrous capsule divided longitudinally along the free border of the kidney as far as it is deemed necessary by the operator.

Hemorrhage is controlled by digital compression of the hilus by an assistant or by a clamp. The cortical substance is divided by the knife or cautery, the knife being preferable as it gives a natural view of the cut surface; if it is considered necessary, the division may be prolonged through the pyramids into the pelvis, which is then examined by digital exploration. If it is deemed necessary to expose the pelvis to ocular inspection, incision is prolonged through both poles so that finally the kidney is completely bisected (Sektionschnitt of the Germans).

The hemorrhage which usually recurs as soon as compression of the hilus vessels is released, is best stopped by reuniting the bisected kidney by deep and superficial sutures. In an aseptic kidney this can always be done; but when there is supperation in the pelvis and calices and the kidney is consequently infected, it is wiser to stop hemorrhage by packing with sterile gauze after only partial union of the bisected kidney.

There is no question that exploratory incision and bisection of the kidney and microscopic examination of a piece of its tissue is the court of ultimate appeal in diagnosis. The question naturally arises whether there is any danger following division of a healthy or only slightly diseased kidney. The danger of infection from without seems to be minimal with our present operative technique, and, in fact, so high an authority as Albarran does not hesitate to aver that the operation is devoid of danger (*ne presente ancun* dange).

While I believe that the danger is minimal, still there are two cases on record, and these are, as far as I know, the only ones of the large number of exploratory incisions made which have presented a peculiarly dangerous consequence; namely, gangrene os the kidney tissue.

CASE I. *Nephrolithotomy—Stone in Pelvis—Primary Suture of Kidney—Hemorrhage, Eighth Day—Local Gangrene of Kidney—Nephrectomy—Death.* A. B., male, age 44, was admitted to the hospital in my service on May 25th, 1893. Family history negative. Patient's general health was fair until the present trouble began three years ago. In August, 1890, after prolonged driving over rough roads, he was seized with severe pain in the right testicle, accompanied by vomiting. The pain gradually disappeared, and was entirely gone in about two days. Toward the close of the attack he felt slight pain in the region of the kidney. During the next two years he had several attacks, usually occurring after severe or prolonged exercise. Since April, 1892, he has had almost constant pain, localized in the region of the right kidney, the pain extending at times down the right leg as far as the foot. No apparent hematuria; under the microscope the urine was found to contain some blood corpuscles and pus cells, but no albumen. The patient has lost about twenty-five pounds in weight during the last year.

Examination. The patient looked reasonably healthy and well nourished; the color of his face is neither rosy nor extremely pale; no tumor can be felt; slight tenderness upon pressure in the lumbar region; no tenderness on rectal examination of the ureter.

Operation. Under ether narcrosis an incision was made from three-quarters of an inch below, and parallel to, the twelfth rib through the skin, latissimus dorsi and abdominal muscles. After dividing the tendon of the transversalis, a mass of paraperitoneal adipose tissue, the size of a goose egg, bulged out into the wound. After pressing this aside by piercing it with dissecting forceps I reached the retroperitoneal thin fascia, covering the adipose capsule of the kidney. At first I could not feel the kidney, and as the operating space was small I divided the quadratus lumborum transversely back to the extensor dorsi, and finally reached the lower end of the kidney. The adipose capsule was thick and so adherent in places that it was necessary to prolong the incision so as to insert the left hand. The kidney was then brought down into the wound, but nothing abnormal could be seen or felt on its surface, nor could any stones be felt in the pelvis. Exploration from the convex surface of the kidney by a needle inserted upward, inward and downward, was negative as to stone, cavity or urine. A piece of the cortex was excised for microscopic examination. I next made an incision two inches long on the convex surface of the kidney; the incision was followed by considerable hemorrhage. It was so difficult to find the cavity of the pelvis that I lifted up the kidney and there saw the ureter on the posterior surface, not dilated, and with no stones in its upper portion. I then succeeded in reaching the pelvis from the convex surface of the kidney. Examination of the pelvis with a steel urethral sound disclosed no stone, nor could any stone be found on digital examination, but I could feel grating after a flexible lead catherer had been passed in various directions in the lower end of the kidney. I then extracted the stone, which was oval, flat, with a roughened crystalized surface, and was one and a half cm. in diameter, and one-half cm. thick. No more stones could be found on exploration. A flexible bougie was next introduced into the ureter and passed down into the bladder without obstruction. I now proceeded to close the wound in the kidney. The hemorrhage was so profuse that it was necessary to continuously compress the lips of the kidney wound, as every time the compression was removed the blood welled up. I then attempted, without success, to compress the vessels in the hilus. The hemorrhage was finally checked by the insertion of four deep sutures, and the closure of the kidney wound was compled by inserting two surface sutures. The adipose capsule was then drawn over the kidney and drains inserted down to the kidney surface. The divided muscles were next united in inverse order, and the skin sutured down to the point of insertion of the drainage tube, and the usual dressings applied. The patient did well for six days, when hematuria and rise in temperature appeared. After this condition had increased for three days, I reopened the lumbar wound and the wound in the kidney, and packed the latter down to the pelvis. This checked the hemorrhage, but the temperature continued to rise, and in two or three days reached one hundred and four degrees. As a last resort I made nephrectom. The operation occupied only a few minutes, but the patient died ten minutes later. In the removed kidney was found a cuneiform, gangrenous infarction; about one cubic inch of the kidney tissue was gangrenous, and was beginning to separate, thus giving rise to the secondary hemorrhage. In the second case, the whole kidney was gangrenous, and the patient survived.

Case VII. *Blotch.* Diagnosis before operation; acute, suppurative pyelonephritis of two months' standing, renal tumor, pyuria, fever, probably stone in the kidney. Operation: nephrotomy; incision in kidney two and a half inches long. No stone found on digital exploration of pelvis. Hemorrhage profuse; stopped by packing, but returned when packing was removed. A pack of gauze was therefore left in the kidney wound. Microscopic examination of the excised tissue revealed infiltration of leucocytes, interstitial nephritis and parenchymatous degeneration of the epithelium. Two days after the operation the tampon was removed, and serious hemorrhage followed, necessitating reopening of the outer wound. Ten days later gangrene of the whole kidney,, which came away in shreds during the following two weeks, and the patient recovered. In my case of gangrene, the supposedly healthy kidney tissue was sutured closely. I attributed the gangrene to the deep sutures, and intended in future cases to abandon deep suturing, and substitute packing. Now, however, as shown in Bloch's case, as gangrene may set in after packing or suturing of slightly diseased kidney tissue, and as greatly diseased kidney tissue, as in pyonephrosis of all degrees, may be divided without gangrene, we may conclude that the cause of gangrene is unknown. These rare cases surely do not contraindicate exploratory operations on the kidney in general.

Narcosis. The position of the patient who is placed on the left side with a pad under the costo-iliac space, causes some embarassment of the respiratory movements of the thorax, and some difficulty to the anesthetizer, because the face rests with one side on the table, thus making it difficult to watch the pupils, and to manage the tongue. As regards the choice of anesthetics as between ether and chloroform, after the use of both of which albuminuria and cylinders, or cylindroids, have sometimes been found in the urine, the investigations of Wood and others seems to favor the use of ether. Albuminuria followed the use of chloroform in 11.5 per cent. of the cases, and of ether in 6.9 per cent. Cylinders were found after the use of chloroform in 34.8 per cent., and after ether in 24.6 per cent. of the cases. Repeated narcosis at intervals of a few days should be avoided. An examination in narcosis for diagnostic purposes should not be made, therefore, a few days before operation.

TREATMENT OF THE OPERATION WOUND.

Solutions of sublimate and carbolic acid should never be used in these cases, as they have a destructive effect on the kidney tissue, causing albuminuria and hemoglobinuria respectively. When irrigation is required, sterilized water or boric acid, or physiological salts solution should be used. The avoidance of the use of iodoform, either for dusting over the wound, or iodoform gauze for packing or dressing is equally important. The experiments of Stubenrauch have proved that even small quantities of iodoform applied locally to kidney tissue cause extensive fatty and parenchymatous degeneration of the renal epithelial cells. In general, iodoform intoxication, similar extensive degeneration is found in both kidneys and liver. Fatal iodoform poisoning following nephrectomy has been reported by Israel and others. In these cases the wound cavity had been packed with iodoform gauze, and the autopsy showed fatty degeneration of the remaining kidney.—*Dominion Med. Monthly.*

FIBRO-LIPOMATOUS TUMOR OF THE EPIGLOTTIS AND PHARYNX*.

By E. Fletcher Ingals, M. D., Chicago.

Mr. S. W., aged twenty-eight years, a farmer, was referred to me early in February, 1899, on account of difficulty in breathing speaking and swallowing. He stated that in 1894 he had noticed a little difficulty in breathing at night; that some time latter his voice became muffled, and that in 1896 he began to have much trouble in swallowing because of some obstruction in the throat, which, however, was not painful. In September, 1896, a growth, said to have been upon the base of the tongue, had been cauterized several times and efforts had been made at its removal with scissors and snares by which small pieces had been taken of off. This had given him some relief for a few months, but afterwards he had gradually grown worse. During the two months preceding the time when he first saw me the throat had been gradually filling up, causing more and more diffiulty in swallowing, but interfering especially with breathing when he was lying down. His voice was much muffied at the time I saw him on account of some obstruction which was not visible on inspection of the throat depressor. He was breathing fairly well when sitting quietly, but had much difficulty when lying down. He had not suffered from previous disease, excepting rheumatism in 1890 and 1894, and some of the diseases of childhood. There was no evidence of hereditary predisposition to any disease. His weight was normal, pulse and temperature normal, appetite and digestion good. There was a little cough for the purpose of clearing the throat, but no expectoration. There was no evidence of pulmonary disease. The nasal cavities were normal; oropharynx, tonsils, and palate also natural. Upon examination with a throat mirror I found a large tumor with a smooth, somewhat congested surface nearly filling the laryngo-pharynx and apparently attached to the right two-thirds of the base of the tongue and to the right side of the pharynx. This left only a small chink about a quarter of an inch in width at the left side of the laryngo-pharynx when the throat was in a passive condition. It was impossible to see anything below this tumor excepting the pyriform sinue and the pharyngo-epiglottic fold of the left side. I suspected that we had to deal with a fibrous tumor attached to the base of the tongue and side of pharynx. The patient was presented at my clinic in Rush Medical College, when the parts were anæsthetized by a spray of a ten per cent. solution of cocaine and a No. 5 steel wire loop was passed about all of the tumor that could be engaged, which seemed to be the greater part of what was visible. The wire was tightened with the snare, but when the milled wheel was turned down to cut off the growth, the resistence was so great that the wire broke. Twice subsequently similar wires were used and both of them broke, so that the operation had to be given up for the time being. I became satisfied that the ordinary polypus snare would not be strong enough to remove the tumor, therefore, a week later, with a uterine *ecraseur*, which I had bent at nearly a right angle, and which was armed with a No. 8 piano wire, I again engaged the upper part of the tumor, that had been formerly caught, and I had no difficulty in cutting it off, removing at the first operation a mass about an inch and a half by an inch in its various diameters. This was covered with a smooth mucous membrane, was firm, and had all the physical characteristics of a fibrous tumor. Immediately afterward I removed another piece, about a third as large, which had the same characteristics, but I found that there was still a large mass lower down, so that the operation gave the patient only partial relief. The effects of the cocaine having worn off, the patient wished to defer further operative procedures for a few days. His throat was necessarily quite sore for some days afterward. He returned to me in about ten days, when I removed another mass an inch and a quarter by half an inch in its various diameters. This had all the appearance of a fatty tumor. A week later I removed two masses each about an inch in diameter, and a week still later not quite so large. As the lower masses of the tumor were removed, it was found that it had been attached to the upper portion of the right side of the epiglottis, to the right pharyngo-epiglottic fold, to a part of the base of the tongue, and to the right side of the pharynx. The lower portion of the larynx was now found to be normal, and all the uncomfortable symptoms had disappeared; but a small bit of the tumor remained in the right valicula, which I could not engage in a snare. This I cut away with cutting forceps and cauterized the part thoroughly with the galvano-cautery; thus the growth was entirely destroyed. The patient was discharged, but agreed to report a month later. The growth was examined microscopically by Professor Hoktoen and his assistants in the pathological laboratory of Rush Medical College. The first mass removed was found to be a typical fibrous growth, another part had the mixed fibro-lipomatous characteristics, and the last large mass was a distinctly lipomatous tumor.

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*Read before the American Laryngological Association at its twenty-first annual Congress.

May 24th.—The patient came into my office this morning, the first time since his discharge, and I have the opportunity of showing the sequel. The right side of the epiglottis is shown adherent to the side of the pharynx and partly to the base of the tongue, but there has been no return of the growth. The adhesions of the epiglottis would appear to prevent it from closing the larynx in deglutition, but nature has adapted the parts to the new conditions, so that he has no difficulty in swallowing.—*N. Y. Med. Jour.*

The Corpuscle

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Communications relative to advertisements and subscriptions ($1.00 yearly to undergraduates) should be addressed and remittances made by money order, draft or egistered letter, to Norman W. Judd, Business Manager, 963 Washington Boul. The CORPUSCLE will be glad to receive news, etc., concerning, or of interest to,alumni.

MEMBERSHIP IN THE ALUMNI ASSOCIATION OF RUSH MEDICAL COLLEGE is obtainable at any time by graduates of the College, providing they are in good standing in the profession, and shall pay the annual dues, $1.50. This fee includes a subscription to The CORPUSCLE for the current year. This journal is the official organ of the Association.

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JOHN EDWIN RHODES, M. D., Sec'y. and Treas., 34 Washington St., Chicago

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In a little more than two weeks one of the most eventful quarters in the history of Rush Medical College will have been completed. The last three months have seen changes which are destined to make our ALMA MATER the greatest medical center in this country and place it a rival of the great European Institutions. The future has great promises for RUSH. She has at her command the finest clinical advantages any city can offer, and with a faculty roll that is the pride of every student and alumnus she cannot help but fulfill the promises of today.

This commencement will bring many alumni within our gates. There is no one factor that builds up a college or encourages its promoters more than hearty and loyal alumni. Among the graduates are names known wherever the diciples of Aesculapius are found. The students and faculty will welcome with open arms those loyal ones who shall be with us during commencement.

COLLEGE NEWS.

All college work will be completed June 13.

The seniors made the annual trip to Dunning May 18. Professor Brower held a very interesting clinic.

Prof. N. Senn delivered an address on "Compound Fractures," at the recent session of the Ohio State Medical Society, held in Columbus.

Commencing with the first of May Prof. J. B. Herrick limits his work to consultation and office practice.

Professor Christian Fenger was recently the recipient of a presentation address from the Scandinavian-American Medical Society. The address—a greeting from the Society—was done on cardboard, with water-color decorations, and a tasty morocco covering.

At the recent election of members in the American Surgical Association there were twenty-two candidates from the West. Only three of these were elected and it is gratifying to hear that all are Rush graduates. Prof. Bevan, Dr. Harris, and Dr. Ochsner were the honored ones.

In a Colles' fracture, after the fracture has been reduced, what is better than the old-fashioned anterior and posterior splints, held in place by adhesive strips? If we desire, we can apply the ordinary muslin bandage over this. The palmar splint should come well down to the metacarpophalangeal junction. With such a dressing we can watch such a fracture and inspect it day by day.—*Dr. E. J. Senn.*

Prof. James Nevins Hyde presented a paper entitled "A Review of the Subject of Blastomycetic Infection of the Skin, with a Report of Three New Cases," at the recent session of The American Dermatological Association. Asst. Prof. F. H. Montgomery and Dr. H. T. Rickets presented three cases of this affection.

Prof. Edwin Klebs, formerly of the Rush faculty, has left Chicago for Switzerland, where he will spend a few months and then go to Germany to reside.

Dr. H. N. Moyer has a "Sketch of the First Meeting of the Illinois State Medical Society" in the *Doctor's Magazine* for May.

There is a stenographic report of one of Professor Senn's clinics in the *Medical Standard* for May. The following cases are considered: pyonephrosis, nephrosis, traumatic, epiphyseal lesions, osteomyelitis, tubercular coxitis, amputation of leg, making a new tibia, etc.

Decennial revision of the Pharmacopeia takes place this year and the election of members of the committee occurred recently in Washington. We are glad to note that Prof. Haines was chosen to membership, not only because he is a Rush man but because he is more than deserving the honor. There were nine new members elected to the committee which consists of twenty-five. The other members from Chicago are Dr. N. S. Davis Jr., Dr. Oldberg and Prof. Halberg.

We are sure that all the students of Rush who know Dr. Sippy are glad to know that he has decided to stay with his Alma Mater. At the same time it is gratifying to all the Doctor's friends that he has been offered such a high compliment as that conferred upon him by his late appointment as Professor of Medicine at the college of Physicians and Surgeons.

SENIORS VISIT SEARLE AND HERETH'S LABORATORY.

Pursuant to the announcement appearing in the May CORPUSCLE the members of the Senior class received neatly printed invitations from the Searle and Hereth Co., requesting the presence, at their laboratory, of the aforementioned august body on the afternoon of May 23.

A large number of the Seniors responded to the invitation, actuated, we hope, as much by the spirit of investigation of the preparation of pharmaceutical products on a large scale, as by a desire to satisfy the reflex stimulation of the gustatory branch of the 5th, caused by a rumor of a banquet to follow.

On reaching the establishment at 73–75 Wells St. a cordial welcome was received by each one, and after "signing up" (we would advise the Bertillon system, hereafter) squads of twelve were conducted through the numerous departments and the workings of the various automatic machines and other modern appliances explained by most obliging gentlemen. In observing the different steps in the preparation of the elegant pharmaceutical goods from the crude drugs, roots, leaves, barks, etc., one was struck with the thought of how readily were some of the difficulties with which our forefathers in medicine had to contend, so admirably solved for these callow disciples of Esculapius—and Billings.

The tour of observation completed each, section was, in turn, conducted into the presence of a tastefully decorated table, whereon all things were not decorations as was soon demonstrated by the dainty refreshments served by the "Ladies Aid" department. In this number of the program Rush truly shone and much joy was added to the occasion by a reunion of long separated cousins—in fact, Sc—ty's universal whiskers met with pointed approval, even in the labelling department. After the tendering, by hosts and guests, of figurative bouquets the "Violet" scented "Naughty-Naughts" departed with a sense of added wisdom and comfort.

HOSPITAL APPOINTMENTS.

Benson, E. O., Augustana Hospital.
Bland, N. W., Chicago Hospital.
Conway, J. L., St. Elizabeth Hospital.
Danielson, K. A., Norwegian Tabitha Hospital.
Farr, R. E., St. Mary's Hospital, Minneapolis.
Flynn, J. P., St. Mary's Hospital, Minneapolis.
Friedman, J. C., Cook County Hospital.
Gollmar, A. H., Alexian Brothers' Hospital.
Holman, C. J., Policlinic.
Jones, H. G., City Hospital, Still Water, Minn.
Kleinman, E. W., Presbyterian Hospital.
Kovats, F. C., St. Joseph's Hospital.
La Force, F. E., Illinois Eye and Ear Infirmary.
Loeb, Leo, Cook County Hospital.
Lyman, T. P., St. Joseph's Hospital.
McLaughlin, G. L., St. Anthony's Hospital.
Roberg, O. T., Presbyterian Hospital.
Senn, W. N., Presbyterian Hospital.
Sheldon, W. H., St. Luke's Hospital.
Smith, J. F., Presbyterian Hospital.
Thorsguard, C. L., Presbyterian Hospital.

Tyndale, W. R., Cook County Hospital.
Vernon, H. S., Policlinic.
Murray, F. G., Presbyterian Hospital.
Loomis, P. A., Presbyterian Hospital.
Bohan, P. T., Alexian Brothers' Hospital.
Timerman, H. E., Alexian Brother's Hospital.
Watson, H. A., Lakeside Hospital.

ALUMNI NOTES.

'98. Dr. E. A. Irwin has located in Boulder, Mont.

'98. Dr. C. J. Habhegger, of Watertown, Wis., spent a few days in the city recently. The doctor is enjoying an excellent practice.

'96. Dr. James Alexander Harvey, has removed his residence from 118 53rd St., Chicago, to the Hyde Park Hotel, 51st St. and Jefferson Ave.

'93. Dr. E. S. Goodhue, one of the founders of the CORPUSCLE, now of Los Angeles, Cal., contributed a story entitled "Mistaken Identity" to the *Doctors' Magazine* for May.

'71. J. V. Harris, M. D., Canton, Ill., died May 7, aged 61 years. During the Civil War he served in the Sixty-fifth Ohio Volunteer Infantry. After graduation from Rush Medical College, he located in Canton.

COMMENCEMENT WEEK PROGRAM.

For the annual Alumni Association meeting of Rush Medical College the following program has been arranged:

SUNDAY, June 17th at 4 p. m. the Doctorate Sermon will be preached in the upper amphitheatre of the college.

TUESDAY, June 19, at 10 a. m., a Gynecological Clinic will be given by Prof. J. Clarence Webster in the upper amphitheatre.

At 3 p. m. Class Day exercises of the class of 1900 will be held in the upper amphitheatre.

PROGRAM.

Prayer	T. J. N. Gatrell.
Address	Prof. Frank Billings.
Vocal Solo	E. O. Benson.
Class History	David Fiske.

Piano Solo..........................C. P. Aling.
Class Poem ....Robert Bachman.
Vocol Solo.......................Robert Hardie.
Class Prophecy ....J. V. White.
Presentation of Class Tablet........O. A. Dahms.
Acceptance of Class Tablet..............Faculty.
Song, "America"..................Class of 1900.

WEDNESDAY, 9 a. m., a Surgical Clinic will be held in the Presbyterian Hospital by Prof. Arthur Dean Bevan.

At 10:30 a. m. will occur the annual Scientific Meeting of the Alumni. The papers to be read are as follows:

"Suggestions Relative to Treatment of Syphilis," Dr. C. Travis Drennen, '85, Hot Springs, Ark.

"The Importance of little things, Contributing to Physical Well Being," Dr. B. B. Griffith, '82, Springfield, Ill.

"The Physician as a Business Man," Dr. F. C. Honnold, '96, Riverside, Ill.

"Surgery in Country Practice," Dr. P. Daugherty, '86, Junction City, Kans.

"The Treatment of Uterine Retro-dislocations," Dr. S. G. West, '90. Chicago, Ill.

12 m. Annual Meeting of the Alumni Association, immediately following the Scientific meeting.

12:30 p. m. a luncheon will be served to the visiting alumni in the laboratory building. A number of the members of the faculty will be present at this meeting to welcome the alumni.

2 p. m. a surgical clinic by Prof. Nicholas Senn.

In the evening the annual theatre party will take place. We have selected the Castle Square Opera Co. as the attraction. The opera "Fra Diavolo" will be given on this evening. The best seats in the house have been reserved so that the Alumni can sit together. These tickets have been obtained at a reduced price and will be on sale by the secretary of the Association at the college building on Tuesday and Wednesday of Commencement week. If reservations are made by the return of the enclosed card an effort will be made to seat those who are members of the same class together.

THURSDAY, June 21, at 9 a. m. a clinic on Nervous and Mental Diseases will be given by Prof. Daniel R. Brower, at the Cook County Hospital.

10 a. m. a medical clinic will be given in the upper amphitheater by Prof. Frank Billings.

2 p. m. the commencement exercises will be held at Studebaker Hall. The annual address will be delivered by Prof. W. W. Keen, of Philadelphia.

The Alumni banquet will be held at the Auditorium Hotel at 8 P. M. A reception will take place in the parlors at 7 o'clock immediately preceding the banquet. At the latter Prof. Henry B. Favill will preside. The exercises will consist of addresses on "Physical and Social Therapeutics" by Prof. Albion W. Small, Head of the Department of Sociology, University of Chicago. "Pre-medical Education" by Prof. Stanley Coulter, Prof. of Biology, Purdue University, Lafayette, Ind. "Surgery of the 19th Century" by Prof. W. W. Keen, Philadelphia, Pa., and addresses by Prof. J. Clarence Webster, Dr. E. O. Benson, class 1900 and President Wm. R. Harper, University of Chicago. The music will be furnished by members of the graduating class and the Tomaso Mandolin Orchestra. The price of the tickets to the banquet will be $1.50.

The Alumni are earnestly requested to return the postal cards to the Secretary at once, signifying the number of theatre tickets desired and also whether they wish a seat reserved for them at the banquet. We are obliged to make a careful estimate on the day of the banquet and it will be necessary to know the exact number who are to attend.

The annual dues of the Association, $1.50, are now payable. We trust that checks may be forwarded for this amount without further notice.

It is believed that the present commencement will be a very enjoyable one for the Alumni and it is hoped that even a larger number than usual will be present, as most of the meetings of the medical societies have already occurred.

JOHN EDWIN RHODES, Secy, and Treas.

34 Washington St.